Reptiles and Amphibians of Algonquin Provincial Park

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This is an account of the 30 different kinds of reptiles and amphibians that have been found in Algonquin Provincial Park. There are fourteen reptiles (five turtles and nine snakes), and sixteen amphibians (six salamanders, and ten frogs and toads).

What are Reptiles and Amphibians?

It is not necessary to make a detailed study of their biology in order to appreciate reptiles and amphibians, but understanding increases with knowledge, and a few facts concerning their life histories and physical characters will help us to know them better.

Reptiles and amphibians are vertebrates, that is animals with backbones. In this regard they are not so very different from birds and mammals, but they have other characters which put them in a world apart.

We humans, our fellow mammals, and birds all produce enough heat inside our bodies to permit us to keep warm and active even when the air or water around us is quite cold. Indeed, the main reason we wear clothes, other mammals have fur, and birds have feathers, is to prevent this internally produced heat from escaping into our surroundings. Reptiles and amphibians, on the other hand, do not have the ability to produce enough heat within their own bodies to keep themselves warm. This means that their body heat must come from their environment and, as a result, their temperature falls or rises along with the surrounding air or water temperature. On a cold day the blood of a snake or frog literally becomes cold, reducing its capacity for activity, and even causing death if the cold weather is prolonged or severe enough. You might think that hair or feathers would be an advantage to a snake or frog since they would help the animal keep warm when the temperature dropped. But hair or feathers would also hinder the animal from getting warm in the first place and this is why no reptiles or amphibians have any insulating layers of hair or feathers. Instead, they have a simple layer of smooth or scaly skin, through which external heat can easily pass to warm up the body tissues inside. This also means that reptiles and amphibians can become dangerously overheated if the surrounding temperature becomes too high.

Reptiles and amphibians are indeed slaves to their surrounding temperatures. Many spend much of the time basking in the sun to warm up, or hiding in the shade or water to cool off, and none can remain active in the freezing air temperatures of a Canadian winter. On the other hand, they don't have to expend a lot of energy maintaining a warm body temperature like we do. This means that their energy requirements are much lower and consequently they can survive much longer periods without food than any bird or mammal.

Another character that helps to put these "cold-blooded" animals in a world of their own is that they never reach a point in their lives at which we can say that they have stopped growing. Warm-blooded animals continue to grow after birth for varying periods of time; then growth stops and they are said to be adult. Man grows for about 20 years, a wolf for about two years, a robin for about six weeks. But this pattern does not apply to fish, frogs, salamanders, turtles, and snakes. While they may vary in size according to age, species, quality of habitat, food supply, and climate, there is no apparent physical evidence that growth does not continue as long as they survive. This suggests that occasional individuals might by chance live for a very long time and reach gigantic proportions. This never occurs, however, because although the growth of reptiles and amphibians never completely stops, it does slow down a great deal with advancing age.

The skin of mammals and birds is constantly being worn away from the outside, and is replaced by new growth from the inside. This is a continuous process and does not affect the habits or appearance of the animals or interfere with their growth. Reptiles and amphibians change their skins when they become too small; they outgrow them just as we outgrow our clothing. In turtles and some lizards the skin flakes off a little at a time but snakes and most amphibians remove their skins in one piece at irregular intervals, depending on their rate of growth and general physical condition. When the time comes, a snake rubs its head against any rough object until it breaks open the dry and loosened skin around the head. Then it crawls out of it and leaves it there. A snake has no eye-lids and cannot close its eyes, but they are protected by glass-like shields that are a part of the skin and are shed and renewed with it. An amphibian takes a more active part in removing its skin, pulling it off over its head as we would take off a sweater, then stuffing it into its mouth and swallowing it.

Differences Between Reptiles and Amphibians

As we have seen, there is much evidence of a relationship between reptiles and amphibians, but there are also many easily recognized differences that may be used to separate them. For example, the skin of an amphibian is smooth and moist, and its surroundings must be moist enough to maintain this condition if the animal is to remain healthy. A reptile's skin is dry and always at least partly covered by scales or bony plates.

The most important differences of all, however, are in the life histories of these two groups. The eggs of most amphibians are laid in water and hatch into a larval stage quite unlike the adult. Larval toads and frogs (the familiar tadpoles or "pollywogs") have tails but no arms and legs. They have gills instead of lungs, and tiny mouths specialized for a diet of minute plants which they scrape from the stems and leaves of underwater vegetation. They are a far cry from the large-mouthed, predatory adult frogs which breathe air and sometimes live far from water.

Young reptiles, on the other hand, are always born on land as miniature versions of their parents and do not pass through a larval stage. Some reptiles hatch from eggs retained within the body of the female and then are born alive.

History of Reptiles and Amphibians

Of the two groups, amphibians are much older. The ancestors of our present day frogs and salamanders evolved from fish some 300 million years ago and were the first animals with backbones to spend part of their lives out of the water. Lacking competition, these primitive amphibians spread widely and evolved into many species, large and small. They dominated the earth but, just as amphibians do today, these creatures nevertheless had to return to the water to reproduce.

It was millions of years before one line of amphibians gave rise to the first reptiles, wholly terrestrial animals able to complete their life cycle on land. The vital dependence on water was finally broken and reptiles were able to colonize the earth much more successfully than the amphibians. As they gradually evolved into more and more different species they slowly out-competed most of the amphibians and supplanted them as the dominant form of life on land. They reached their peak in the age of the dinosaurs, many of which were far larger than any living land animal of today. Then, about 70 million years ago, the dinosaurs died out and mammals and birds rose to the position of dominance they still occupy today. As with the amphibians before them, reptiles were shunted into the background. Only the snakes, turtles, lizards and crocodiles survive to this day as modest reminders that reptiles were once the most prominent animals on earth.

Reptiles and Amphibians in Algonquin

Except in warm tropical regions there are very few places in the world where reptiles and amphibians form a conspicuous part of the local wildlife. Not surprisingly, this is even more true in areas like Ontario which have quite cold climates. Only a few species of these cold-blooded animals are able to hibernate successfully through our long, freezing winters, and this fact becomes more and more obvious as you travel north. Thus, while over forty kinds of reptiles and amphibians are native to the Lake Erie shoreline in the south, only seven are found as far north as James Bay.

Another illustration of the influence of climate may be seen in Algonquin Park. In the western part of the Park the elevation rises to as much as 580 metres and averages 150 to 250 metres above the east side of Algonquin and above much of the country surrounding the Park in all directions. This altitude gives Algonquin the coldest average temperatures in southern Ontario and prevents many plants and animals from getting established here. There are 30 species of reptiles and amphibians which have been found in Algonquin but there are six more which are found in lower, warmer areas surrounding the Park. Even within the Park itself we find that four species are restricted to the lower, east side of the Park and another two are much more common there than they are on the higher west side.

Algonquin Park cannot be said, therefore, to be a particularly favourable area for reptiles and amphibians. The Park is important to these creatures, however, and may very well become much more important as the years go by. The fact is that the environments of southern Ontario have been drastically altered in the last century and a half. With the clearing of forests, the draining of marshes, and the pollution of streams many reptiles and amphibians have become quite rare or have disappeared entirely from huge areas of their former ranges. In addition, road traffic, unreasonable human fear (especially of snakes) and commercial exploitation of frogs and turtles have all combined against reptiles and amphibians in many parts of our province. Algonquin stands as a notable exception to this unfortunate trend and gives promise that here at least these creatures will continue to live as they have for thousands of years. Already we have reason to believe that the Wood Turtles in Algonquin may be one of the last significant populations in Ontario.

About This Book

In the pages which follow, the word "common" means that we may reasonably expect to see the animal in question from time to time without making a special search, while "rare" means that it does occur but is seldom seen unless we are especially looking for it. The use of such terms to describe reptiles and amphibians is quite arbitrary, and is intended only to suggest what may be expected. These creatures live in a world so remote from our own (for example, the interior of rotten logs) that it is almost never possible to give more than a general idea of their actual numbers.

It is not in the nature of things that reptiles and amphibians should compete with birds and mammals for popularity in the public mind, but they could be given more attention, appreciation, and assistance in survival than they now receive. We hope that this publication on the species found in Algonquin Park will make at least a small contribution towards an improvement in their popular image. We do not see them often, but they play an integral role in the economy of nature. They may be "lowly" but the singing of toads and frogs is as much a part of the natural world as the call of a loon or the howl of a wolf. We suspect that the ultimate extent of our success in preserving a high quality environment will be measured less by spectacular, visible projects on its surface than by our attitude towards the lowest and least considered of its inhabitants.

The English, French, and Latin names used in this book follow those given in the CHECKLIST OF AMPHIBIANS AND REPTILES OF CANADA (Canadian Amphibian and Reptile Conservation Society Bulletin, December 1980) by Francis R. Cook.

REPTILES

Turtles/*Order Testudinata*

Snapping Turtle	*Chelydra serpentina*	**Chélydre serpentine**
Spotted Turtle	*Clemmys guttata*	**Tortue ponctuée**
Wood Turtle	*Clemmys insculpta*	**Tortue des bois**
Blanding's Turtle	*Emydoidea blandingi*	**Tortue mouchetée**
Painted Turtle	*Chrysemys picta*	**Tortue peinte**

In scientific classification no distinction is made between a turtle and a tortoise, but the general practice is to call the more aquatic species turtles, and those that spend much time on land tortoises. They are among the older vertebrate animals, measured by geologic time, and fossil evidence indicates that their appearance and way of life have changed little in the last 200 million years. It has been said that while man must learn about dinosaurs from records in the rocks, the turtles actually watched these great creatures rise, reign, and perish. The world still has some large turtles, up to 250 kg, but there is evidence that in prehistoric times they grew even larger, at least one species up to two metres long and 1.5 metres high. Some apparently authentic records tell us of individual turtles that may have lived more than a century, but there are few reliable statistics on their longevity. Expert opinion seems to be that they seldom reach the great ages often attributed to them.

For reasons unknown there is no mention of the turtle or tortoise in the Bible, although the fable of the Hare and the Tortoise was written in the 6th century, B.C. Closer to home, the Algonkian Indians, for whom the park is named, regarded the turtle as a sacred fertility symbol. The ancient Greeks, on the other hand, were somewhat less enlightened, using the turtle to symbolize the duty of women — to keep house and be silent. The reference to housekeeping comes from the fact that the turtle carries its house on its back and this fusion of a part of the skeleton into a solid shell that encloses all of the body except the head, neck, legs, and tail is unique among vertebrate animals. The upper part of the shell is called the carapace, and the lower portion, the plastron. There is no doubt that the hard shell of a turtle protects it from many potential enemies, but it also poses a problem other animals don't have to contend with — namely breathing. Turtles cannot expand their chests to draw in air, but get around the difficulty thanks to a mechanism in their throats which enables them to pump air into their lungs.

Human behaviour around the turtle pools at the Algonquin Park Museum leaves little doubt that people are fascinated by turtles, perhaps because of their ability to remain motionless for such long periods, above or below water. This ability is quite understandable when you remember that turtles are cold-blooded; when inactive, they have very low food requirements and can survive long periods without eating at all. Fasting is not a normal habit, however, and in summer when temperatures are warm and food is available they eat regularly, maintaining a high level of reserve fat. This is very important in cold climates such as Algonquin's because the reserve must be large enough to provide energy in the spring and fall when food is not abundant.

SNAPPING TURTLE This is the largest and almost certainly the commonest turtle in Algonquin Park. It is the only species here with a carapace measuring 30 cm or more in length, and may usually be identified by size alone. Old individuals have a very smooth shell, often covered with green algae that help to camouflage the turtle as it lies half-buried in the mud under shallow water. Small specimens are easily recognized by their plain dark colour, always some shade of gray, brown or black, and the jagged ridge along the top of the tail. Oddly enough, their identity is even more evident upside down than rightside up because of the greatly reduced plastron, so small, in fact, that it affords almost no protection to the turtle's underside. This lack is perhaps more than compensated for by the snapper's powerful jaws which can be snapped together with incredible speed and power. Inexperienced persons should not try to handle snappers, but it is quite wrong to say that they are vicious. They are, in fact, among the most inoffensive of animals, biting only in self-defence when cornered or captured on land. In water, where they are much more mobile than on land, snappers invariably try to swim away from approaching danger and almost never try to bite.

Perhaps because of its imposing size and fearsome reputation, this turtle shares with fish the exaggeration that goes with stories about "the big one that got away," and reports of snappers of huge dimensions are brought home each year by summer tourists. With the intention of helping to settle some arguments we are able to state that the biggest snapper ever recorded anywhere had a shell length (straight line distance) of only 47 cm (18½ inches) and, of course, most are appreciably smaller than that. However, it is true that, measured from the tip of the nose, with the neck extended, to the end of the tail, a really big one may reach a metre or more in length and weigh 20 kg.

Along with the exaggeration about the snapper's size goes a popular belief that it is a ferocious and unrelenting predator of such animals as fish and ducklings. Indeed there is no doubt that such animals are taken from time to time but it is hard to say how many are actually captured by snappers and how many are found dead. In captivity it thrives on a diet of fresh carrion, mostly dead fish, no more than two or three days old. Moreover, stomach examinations of wild Snapping Turtles reveal that, notwithstanding the powerful biting jaws, the snapper is a vegetarian to a surprisingly large degree. By far the most important single item in its diet is the algae that often grow in thick "moss-like" beds in quiet, shallow waters. The roots of water lilies are another favoured food.

Snapping Turtles are quite aquatic, inhabiting almost every type of water except swift streams, from large lakes to muddy beaver ponds. Here in Algonquin Park, near the northern limit of their range, they spend much more time sunning themselves than they do farther south. At first glance this seems rather puzzling because northern snappers have a much shorter summer in which to mate, lay eggs, and store enough fat to make it through the long, severe winter. When you remember that Snapping Turtles are cold-blooded, however, the habit of sunning themselves makes more sense. By getting out of the cool water and soaking up the sun, Algonquin Park turtles raise their body temperatures and speed up the process of digestion. This permits them to eat again sooner and

Snapping Turtle

lay on more fat than if they were to stay in the water all along.

Another occasion when snapping turtles leave the water and the time when we are most likely to see them is the June nesting season. At this time of year the females search for suitable areas of sand or gravel in which to excavate nests. Favourite locations in Algonquin Park include the embankment of the railway that formerly crossed the southwest corner of the park and the shoulders of Highway 60. The eggs, which number two dozen or more, are round, white, and rubbery, suggesting smallish ping pong balls. The chances of their making it through to hatching time in the fall, however, are very poor. Many nests are located and dug up by foxes or skunks and, in cool summers, other clutches are not sufficiently incubated by the time cold weather sets in and so they never do hatch. Recruitment of new snappers into the adult population is so low, in fact, that the species survives here only because big snappers have a very high survival rate and live for a very long time. A female, for example, may not breed until she is 18 or 19 years old but then she will lay eggs every year until she is in her seventies or even older. Even if almost all her eggs are destroyed and most of the few hatchlings also succumb before maturity, it will only take one survivor from over 50 years of egg laying for her to be replaced when she finally dies.

Snapping Turtles are protected in Algonquin Park and are just as much a part of our wildlife as beaver or moose. All of us should be concerned about the preservation of this harmless and picturesque relic from life in the past. In many areas snapping turtles are being exploited for food although it is obvious, with their excruciatingly low reproductive success, that they are woefully unable to withstand such pressure. Here at least, these venerable creatures should be able to live out their lives free from human predation and free from human prejudice.

SPOTTED TURTLE With a maximum shell length of 12 cm this is the smallest Algonquin Park turtle, and as it has been found only twice, it is also the rarest.

It is dark brown or black, with a sprinkling of small yellow spots on its carapace. On each side of the neck there is a larger spot, often more orange than yellow, and the plastron is boldly patterned in orange and black.

In Ontario the Spotted Turtle was at one time quite common in the Lake Erie area and also near the east shore of Lake Huron and Georgian Bay at least as far north as Parry Sound. Unfortunately it is a turtle of boggy, marshy areas — habitats which have been disappearing at a rapid pace in southern Ontario. The result has been that the Spotted Turtle is now quite rare in Ontario even in areas where it was once quite common.

In view of its rarity and known distribution, we were somewhat amazed when the first Spotted Turtle was discovered in Algonquin back in 1967 and again in 1970 when the second turned up a few km away. Both sites are almost 150 km from Georgian Bay and well within the part of Algonquin which drains east towards the Ottawa River. Since then two populations have been discovered in the Ottawa Valley, and it is a remote possibility that there is a sparse but continuous population right across to Georgian Bay. More plausibly, our Algonquin Park Spotted Turtles may be a distinct population separated from its nearest neighbours. Such a pocket could date from about 5000 years ago when the climate was warmer and the Spotted Turtle may have been more widespread than it is today. As the climate subsequently cooled, Spotted Turtles may have died out in many areas but managed to survive in scattered locations where conditions happened to be a little more favourable. This would seem to be the most likely explanation for the presence of Spotted Turtles in Algonquin but at the moment it is mostly speculation. There has never been a systematic search for the species in Algonquin and only a larger accumulation of records would help to solve the mystery. Any small, blackish turtle with yellow spots found in or near the Park should be reported at the Park Museum, accompanied by the turtle, if possible. It will be carefully returned to the place where it was found after identification and measurement.

BLANDING'S TURTLE Next to the Snapper, the Blanding's is the largest of our Algonquin Park turtles. It has a highly arched carapace that may reach a length of just over 25 cm and is usually covered with dull white or yellowish spots and streaks on a dark background. The plastron is yellow, with a pattern of dark blotches similar to that of the Wood Turtle, but the Blanding's has a bright yellow throat and chin which are visible at some distance and make identification easy. It is distinctive among Algonquin turtles in having the plastron divided crossways into two parts held together by a ligament. This permits both the front and back parts of the plastron to be pulled up closer to the carapace when the turtle retreats within its shell.

The Blanding's Turtle is most often found in or near water, but like the Wood Turtle, it can swallow food on land and apparently eats some wild fruit and green vegetation away from the water.

Also like the Wood Turtle, this handsome species seems to be losing ground in its fight against increasingly humanized habitat, and it has been listed as an endangered species in Canada. One of its remaining centres of relative abundance is the Ottawa Valley and it seems likely that the Blanding's Turtles of Algonquin Park are or were continuous with that population. The majority of our records are from the east side of the Park and it seems to be very rare or altogether absent in most parts of the western uplands.

No one knows exactly why the Blanding's Turtle is so rare here but it may have something to do with our cold climate since other conditions seem favourable. Winter is obviously a serious challenge to a cold-blooded animal like a turtle and it is interesting to consider the problems they face at that time.

During the winter when ice and snow seal off Algonquin ponds from the frigid air above, turtles are immobile and half-buried in the muddy bottom. They do not eat during these long months of hibernation and are entirely dependent on the stores of fat accumulated the previous summer. If this food reserve runs out before spring, the turtle will starve to death. Since winter lasts longer in Algonquin than in the lower and warmer country around the Park, turtles in Algonquin have to be especially good at accumulating a winter supply of fat. The Blanding's Turtle may be just at the borderline in this regard.

There is another problem faced by hibernating turtles as well. Even though the food reserve is used up very slowly, it is still a process which requires oxygen. Normally, of course, turtles get oxygen by breathing air. But this is obviously impossible at a time when the turtle is so cold it can barely move and in any case has no access to the air above. All Algonquin turtles face this problem and survive thanks to what might be called primitive gills. These are a pair of thin walled sacs, richly supplied with blood vessels, located in the turtle's anus. Oxygen passes from the water in the sacs into the blood vessels and carbon dioxide moves from the turtle into the water. From time to time the sacs are emptied and refilled with new water having a fresh load of oxygen.

Of course none of this will do the turtle any good if the water at the bottom of the lake runs out of oxygen before winter is over. This sometimes happens in some Algonquin ponds and lakes and may very well explain why turtles are often absent from otherwise suitable looking bodies of water.

WOOD TURTLE This attractive reptile has a very spotty distribution in Ontario. It may have suffered from human activities which have so altered and reduced its natural habitat of forests near rivers running through sandy or gravelly areas. Here in Algonquin, we are fortunate that the Wood Turtle is still moderately common in much of the eastern portion of the Park. It has been seen on numerous occasions and at many locations from the eastern boundary to as far west as Lake Traverse in the north and Shall Lake in the south. There is no doubt that these animals are one of the few significant populations of Wood Turtles left in the province.

The Wood Turtle is of medium size, with a dull grey or brownish carapace up to 20 cm long. The latin name *insculpta* refers to the striking sculptured effect given by the narrow concentric ridges on each "scute" or section of the carapace. The plastron is yellow, with large, dark blotches down either side, and the neck and legs are marked unevenly with orange or yellow.

This species is the nearest among our turtles to what might be called a tortoise. It has the ability to swallow food out of the water and spends much time on land foraging for berries and a variety of wild plants. Those we have had in captivity were fond of apples, grapes, tomatoes and strawberries. The dry, sandy, pine or poplar forests where we have usually found it here in Algonquin usually support good stands of blueberries and these probably form a good part of the Wood Turtle's summer diet. We have always been impressed by our captives' intelligence and ability to move around quickly and strongly.

Although the Wood Turtle is much more at home on land than any other Algonquin Park turtle, it does return to the water in the fall, and also remains there for a while in spring after hibernation. During these periods it apparently eats insects and fish.

Wood Turtle

PAINTED TURTLE At first glance the Painted Turtle may appear to have been misnamed, for its smooth, 15 cm carapace is a dark brown or black. A closer look, however, will show that the plastron is a bright yellow usually with a central blotch of dark. There are also markings of red, yellow, and black scattered over the head, legs, and neck and around the lower side of the carapace rim.

The Snapping Turtle may be more common in Algonquin but the Painted Turtle is more visible because of its habit of climbing out of the water on any convenient object to bask in the sun. A favourably placed log will attract many of the Painted Turtles present on a sunny day. But they are extremely wary, and at the first sign of danger, they drop into the water and disappear.

Water is indeed home to the Painted Turtle and they are rarely found very far away from ponds or weedy bays of larger lakes. As with many turtles, this species can swallow food only under water and that is where the mixed diet of vegetable and animal matter is hunted and consumed.

Adult Painted Turtles become active in late April not long after the ice has melted and the water temperature has only reached about 8°C. It may be chilly, but it is spring all the same and the "thoughts" of Painted Turtles turn to love. Actually there is no reason to believe that the turtles do any "thinking" at all, and every reason to suppose that their actions are entirely instinctive. But this does not make the mating ritual of the Painted Turtle any less fascinating. The male pursues the female underwater and attempts to swim past her. If he succeeds, he turns and scratches the female's chin with the especially elongated claws of his front feet. After a few such sessions all resistance crumbles and mating takes place.

In June the females leave the water to lay their eggs and this is about the only time of year when you will see them very far from water. The female wanders until she has found a place with suitably soft sand or earth. She may make the digging even easier by urinating on the chosen spot and then, alternately using both her webbed hind legs, she scoops out a flask-shaped hole as deep as she can reach. After a short rest she lays from five to eight elliptical white eggs, arranging each with one of her legs. Another rest follows and then her hind legs go to work again, this time shoving the excavated earth back into the hole. Finally she turns and tamps down the freshly dug earth with her plastron. Her instinctive duties over, she heads for the nearest water and there she will remain for another year. It is interesting to note that at no time in the whole operation has the turtle seen her own eggs.

If she ever sees her offspring in the years that follow, most of them will be females. One study in Algonquin Park showed that females account for 70% of adult painted turtles and an even higher proportion (over 85%) of hatchlings. The reasons for this are not completely understood although it is known that the genetic sex of a turtle embryo can actually be reversed by the temperatures prevailing during the first half of incubation. Eggs subjected to constant temperatures of from 22°C to 26°C always hatch out as males, and eggs incubated at 30°C or more invariably emerge as females. Of course, in a real situation the temperature fluctuates but what influence such variation has on the sex of turtle embryos is not yet known. It is intriguing to think that Painted Turtles might reach a northern limit in their distribution, not because they are unable to survive beyond that point but because, farther north they are unable to hatch out enough young turtles of both sexes to propagate their species!

Painted Turtle

Snakes/*Order Squamata*

Commom Water Snake	*Natrix sipedon*	**Couleuvre d'eau**
Brown Snake	*Storeria dekayi*	**Couleuvre brune**
Red-bellied Snake	*Storeria occipitomaculata*	**Couleuvre à ventre rouge**
Eastern Ribbon Snake	*Thamnophis sauritus*	**Couleuvre mince**
Common Garter Snake	*Thamnophis sirtalis*	**Couleuvre rayée**
Eastern Hognose Snake	*Heterodon platyrhinos*	**Couleuvre à nez plat**
Eastern Ringneck Snake	*Diadophis punctatus*	**Couleuvre à collier**
Smooth Green Snake	*Opheodrys vernalis*	**Couleuvre verte**
Milk Snake	*Lampropeltis triangulum*	**Couleuvre tachetée**

Throughout the world's history snakes have been regarded with revulsion by the average person. Most of this feeling is based upon ignorance rather than actual experience. From generation to generation there have been passed-on "experiences" which have been more fanciful than factual. People have given themselves the idea that snakes are miserable, slimy and poisonous creatures to be feared, avoided, or killed whenever possible. This attitude is perhaps understandable in areas of the world which have poisonous snakes, but even there it misses the point that most snakes are quite harmless. Here in Algonquin, which has no poisonous species at all, snakes may be fearlessly enjoyed for what they are — a small but fascinating part of our native wildlife.

Most people have never looked at a snake or stopped to wonder how they make a living and we think it worthwhile to present some of the basic facts before going on to meet the nine species which occur in Algonquin.

All snakes are carnivorous, that is, they eat other animals. Some of our smaller species eat worms and slugs but the larger ones depend mostly on frogs, toads, salamanders, and in some cases, mammals, birds and fish. Snakes do not possess teeth designed for chewing, and their usually live prey is swallowed whole, even though it may be of much greater circumference than the snake's body. This is made possible by a specialized anatomy which includes an elastic skin, and jawbones that may be moved independently to form an opening adjustable to a variety of shapes and sizes of prey. Small, sharp, backward-sloping teeth prevent the prey's escape, and muscular actions that move the jawbones backward and forward force it down the snake's throat. When the prey has been swallowed, the snake's head and neck return to normal size, pulled into place by elastic ligaments that tie the bones together, but the stomach region will remain distended until the food has been digested. This condition impedes the snake's movements considerably, and it is likely to remain quietly in some inconspicuous place until its size is reduced enough to permit normal movements.

Unlike turtles, which depend largely on their hard shells for protection, snakes are extremely vulnerable to physical injury, and must avoid their many enemies by speed and concealment. The skin of a snake is covered by scales. On the sides and back of the snake the scales are small and arranged in longitudinal rows, alternating and overlapping like shingles on a roof. Depending on the species, the scales may be either smooth or "keeled," that is, with a ridge along the centre, a feature that can be useful in identification. The scales on a snake's belly are fused into broad plates that reach from one side to the other, and provide the means of locomotion. Each plate is attached by its front edge only, and the sharp rear edges, pushing against any unevenness of the surface on which the snake is lying, move it smoothly forward in response to muscular "waves" that pass from front to rear along its body. This explains why a snake can only wriggle helplessly on a smooth, hard surface, such as a polished floor.

The forked tongue of a snake, often wrongly called a stinger, is quite soft and flexible, incapable of causing injury to anything. When a snake sticks out its tongue at you, it is really just "sniffing." The moist tongue picks up odours in the air which are examined by a special sense organ in the roof of the snake's mouth when the tongue is withdrawn.

Snakes do not have eyelids and so are unable to blink or close their eyes, and their fixed stare along with flickering tongue and crawling movements suggest to many people a sinister aspect which is in fact completely absent. Far from being cold and slimy, a snake feels warm, soft, and dry to the touch, and handling snakes is one of the best ways to get away from any feeling of revulsion that may bother us.

There is only one poisonous snake in Ontario, the Massassauga Rattler, and it does not occur in Algonquin. However, even nonpoisonous snakes should be handled with reasonable caution. At least three Park snakes — Garter, Milk, and especially Water — may bite if they are roughly treated. The surprising thing is that the other snakes almost never bite no matter how badly they are treated. Those that do bite should not be given a bad name for defending themselves. After all, a chipmunk will also bite in self-defense, (and far more devastatingly than any Algonquin snake). Never "grab" a snake. Grasp it with just enough pressure to prevent its escape and no more; then let it slide easily from one hand to the other or wind itself around your wrist or fingers, and you are unlikely to be bitten. Snakes are quite vulnerable to severe injury if squeezed too tightly, especially toward the head. It is hoped that the descriptions and illustrations in the following pages will help you to recognize and appreciate any snakes you may be fortunate enough to see while in Algonquin Park.

COMMON WATER SNAKE The Water Snake is one of the largest snakes in Algonquin, sometimes exceeding a metre in length, although 60 cm is more common. In adults the colour varies between gray, black, and brown with obscure dark blotches on the sides and back, and irregular or sometimes crescent-shaped marks spaced along the underside.

The Water Snake is one of those species with a restricted distribution in Algonquin Park. While it appears to be reasonably common in the Barron, lower Petawawa and possibly Bonnechère River systems on the east side of Algonquin, it has never been positively recorded on the high, west side of the Park.

As its name suggests, this species is decidely aquatic. It is seldom seen very far from water, and when frightened it usually dives or swims away rapidly. If captured it will bite vigorously and is quite capable of lacerating the skin. It also flattens the body, making it appear larger than it really is, and emits a foul-smelling liquid from glands at the base of the tail. These are normal defensive gestures, and if treated gently, the Water Snake can become a docile captive.

The food of this snake includes small fish (dead or alive), frogs, salamanders, crayfish, and rarely mice or shrews.

The Water Snake does not lay eggs but gives birth in late summer to twenty or forty young already hatched within the mother's body.

Common Water Snake swallowing a Leopard Frog

BROWN SNAKE This species is small and slender, and most individuals seen are only about 30 cm long. It is reaching the northern limit of its range in Algonquin Park and seems to be quite uncommon here. But then its small size, dull colour, and secretive habits make it hard to find even where it is known to be common, so it is possible that we have more than the records indicate.

The colour pattern is brown above and pale yellow or pink below, and a close look will show a lighter stripe down the middle of the back, bordered by a darker area and a row of small, dark spots. There is also a small dark stripe on each side of the head, but all these markings are variable in their intensity and never conspicuous. The general impression will be in keeping with its name, a small, brown snake. Very young specimens have a yellow band across the neck and could be mistaken for young Ringneck Snakes, but certainty of identification can be made by examining the scales, which are keeled on this species and smooth on the Ringneck.

The Brown Snake is most often found under logs, rocks, or similar objects on the ground, and its food consists largely of earthworms, snails, and slugs.

A brood of from 10 to 20 live-born young is produced during the summer.

SMOOTH GREEN SNAKE The Smooth Green Snake has been recorded less than two dozen times in Algonquin, more often from the east side of the Park. This is a pity for it is an outstandingly beautiful snake — pure grass green above, and white or yellowish below.

Its coloration is perfect camouflage, however, and it is quite possible that this snake is much commoner than the records would indicate. We simply don't know. We can tell you, though, that if you are lucky enough to see a Green Snake, it will likely be just in the act of disappearing. They can move very quickly and vanish uncannily before your eyes. Normally the Green Snake lives on the ground but it is also adept at climbing through shrubs a metre or two above the forest floor.

The Green Snake is an insect eater, taking grasshoppers, crickets, caterpillars and spiders. It is also known to feed on salamanders and snails to some extent.

The female lays from four to ten elongated eggs in one of her hiding places and the young will likely hatch in about two weeks since they are already well developed when the eggs are laid.

RIBBON SNAKE The Ribbon Snake is included here on the basis of one sight record at Stratton Lake on the east side of Algonquin in 1962. The observer in this case was a scientist thoroughly familiar with the species from elsewhere. In view of these meagre data we would like to encourage the practice of taking a second look at any "Garter Snake that does not seem quite right."

The Ribbon Snake is closely related to the Garter Snake but is a distinct species, and although it has the familiar striped coloration, the black and yellow stripes are bright and clear-cut, and the snake itself is more slender and generally more timid and faster in its movements. Our own impression is of a slim streak of black and yellow appearing and disappearing like lightning among the long grass at the edge of a pond, for it is more specific in its choice of habitat than the Garter and is seldom found far from water in some form. Should you be able to examine one at close range, look for a distinct "neck" dividing head from body, also a tail more than one quarter the total length of the snake. A snake's tail is that part from the vent to the backward tip. This is easily seen on all Algonquin snakes, because the scales on the lower side of the tail are divided, but are all in one piece on the lower side of the body.

Reports of suspected Ribbon Snakes would be much appreciated at the Park Museum.

MILK SNAKE The Milk Snake has been recorded only five times in Algonquin, with three other sightings in areas adjacent to the Park. But as these observations include both east and west sides of the Park and since the species is known from all around our boundaries, it may be that the Milk Snake maintains a sparse population throughout much of Algonquin.

It is long and slender, averaging between 60 and 90 cm, and is marked from end to end by black-bordered, reddish brown blotches against a gray or fawn background. Its belly is usually marked with a striking black and white checkered pattern, and a "Y" shaped mark on the top of its head also helps in identification. Its body is of more uniform thickness, without taper, than that of most snakes.

The name "milk" comes from an old belief that it steals milk from cows, a preposterous notion that may have started because, in settled country, it frequents barns in search of mice, which form up to 70% of its food.

It is unique among Algonquin snakes in its habit (shared by the pythons of tropical regions) of subduing its prey by constricting it in the coils of its body. There is a widespread belief that constrictors crush their victims to death, but the truth is more subtle than that. A Milk Snake which has seized a mouse, for example, quickly and tightly coils its body around that of the struggling rodent. Each time the mouse breathes out the coils are tightened that much more and the final result is that the mouse can no longer inhale and dies through suffocation.

Milk Snakes are much more irritable than most Algonquin snakes. When annoyed they sometimes vibrate their tails giving rise to the mistaken impression that the snake is a rattler. This is far from being the case but Milk Snakes may bite vigorously in self-defense if caught by a human.

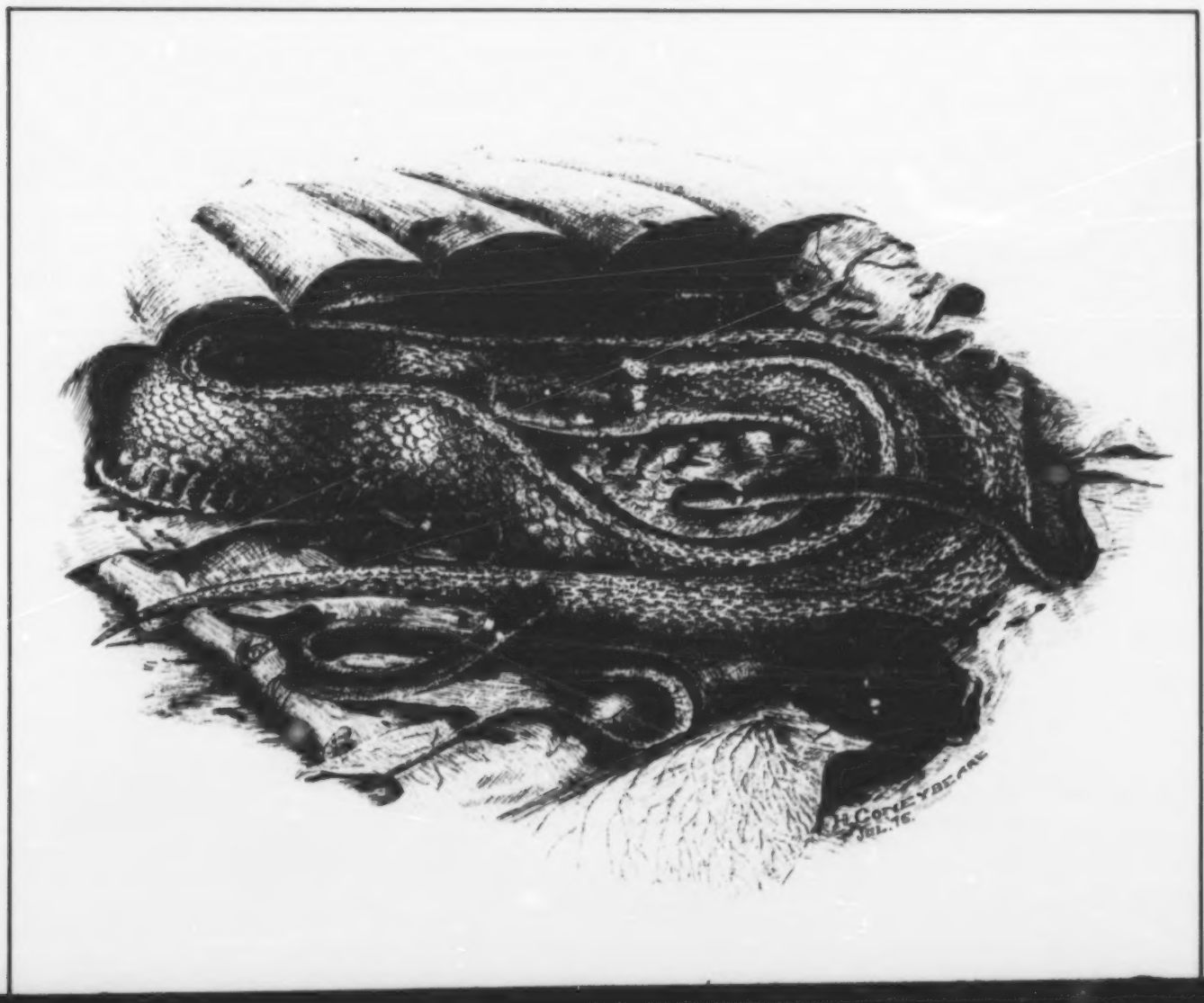
The female lays from eight to sixteen eggs in a rotting log or similar place sometime during the month of June or July.

RED-BELLIED SNAKE The Red-bellied Snake is similar in many ways to the Brown Snake but is smaller and has somewhat brighter colours. Above, it varies through black, brown, and gray, though it is most often a reddish brown. The under parts are usually a fairly bright pink or red, set off by a row of tiny dark spots along each side, dividing top from bottom. A light area at the back of the head is usually noticeable, and a close inspection will show that this is made up of three yellow spots, a "trade-mark" of the Red-bellied Snake.

It is completely harmless, and delightful to handle. We believe it to be quite common in Algonquin but, as with the Brown Snake it is hard to be sure since the Red-belly hides under logs and rocks during the day and is active chiefly at night. Its prey includes slugs, earthworms and beetle grubs.

It gives birth to as many as thirteen, more usually seven or eight, live young in late summer.

Female Red-bellied Snake with her litter



COMMON GARTER SNAKE This is the snake most often seen in Algonquin Park and just about everywhere else in Canada. Although the colours in its familiar striped pattern vary from snake to snake and from place to place the pattern itself proclaims it a Garter Snake. The most common arrangement is three yellowish stripes on a dark background for the full length of the snake, but colours and pattern are both variable, and those with a keen eye for detail may question the identity of exceptional individuals. A strong reddish tinge is noticeable on some Algonquin Park Garter Snakes.

This is a snake of medium size, usually well under a metre long but rarely attaining a length of more than that. Its staple food consists of frogs, toads, and earthworms, but it will also eat fish, mice, and small birds if they are available. We would hardly expect it to have a specialized diet, for it occupies just about every type of habitat, from bogs and marshes to dry, rocky hills and sand plains, and its range extends from coast to coast in North America and from Florida to James Bay. It is a prolific species, breeding in both spring and fall, and producing from 10 to 40 or more young in a litter. Certainly it is a significant member of the swarming population of small creatures that live at ground level and provide food for the larger animals. It is, in fact, a very important link in the food chain, for it is preyed upon by a number of larger birds and mammals. No better picture of the interlocking structure of nature could be found than that of a Broad-winged Hawk dropping from an overhead branch beside a beaver pond and picking up a Garter Snake that has just swallowed a frog that has been hunting insects in the vegetation at the water's edge.

Common Garter Snake

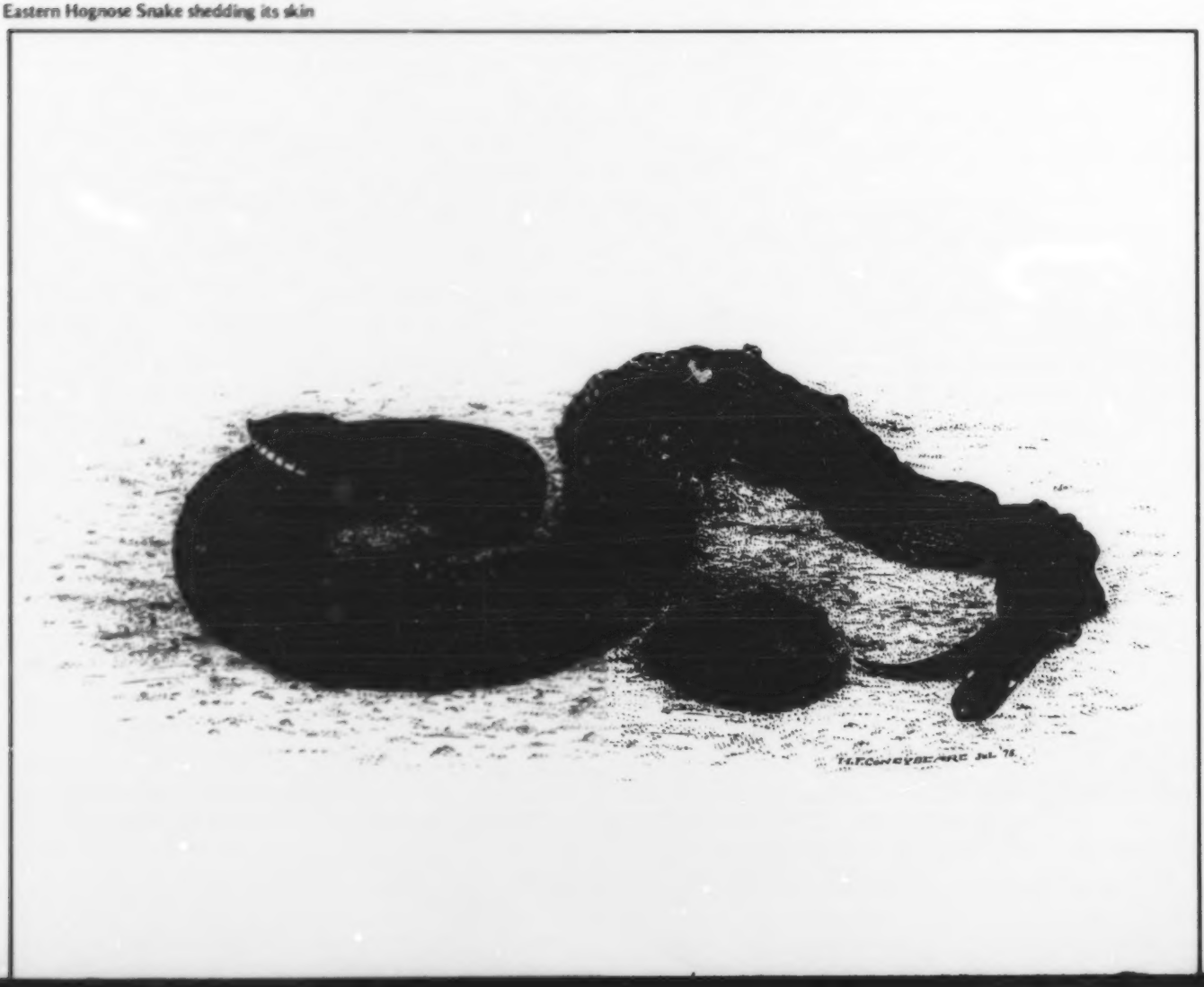
EASTERN HOGNOSE SNAKE We would not expect this snake to be common in Algonquin Park, because it is close to the northern limit of its range here, and because its habits favour a more open type of country. It does occur, however, and we have about a dozen records, scattered along Highway 60 from the West Gate to the East Gate. An alarming decrease in recent Hognose sightings in other parts of Ontario is not encouraging. It has always been subject to much human persecution, because of a completely erroneous belief that it is poisonous. This belief, along with steadily diminishing natural habitat, will inevitably cause the disappearance of such a large and slow-moving reptile from areas adjacent to permanent human settlement. Unless we are able to change completely the present attitude of indifference to the welfare of such "low" forms of life, they will soon be entirely dependent on places like Algonquin Park, where there are large sections of relatively undisturbed cover.

The Hognose Snake has several unique features of both appearance and habits which place it high among the more interesting forms of Park wildlife. Frequently close to a metre long, its colour may be any shade of black, gray, brown or olive, often washed with red or orange, and partly obscured by large, dark blotches which may blend into the background colour on darker specimens. The under parts are dull white or yellow. It has a pointed, upturned, pig-like snout with a hard tip, which it uses for plowing and burrowing in light soil. This odd habit helps it to find toads, which commonly conceal themselves in shallow burrows. Yet another feature helping the Hognose prey on toads is a pair of long teeth in the rear of the upper jaw. These teeth apparently serve not only to help hold struggling toads but also to puncture and deflate them. (Toads commonly inflate themselves with air when they are attacked by snakes so that they appear impossibly big to swallow).

It has indeed been well established elsewhere that toads form a large part of this snake's diet but we have no first-hand information on its food habits in Algonquin Park. We do know that it is not dependent on toads, as we have kept one in captivity and in excellent health for six months on a diet of Leopard Frogs. Behaviour towards prey by captive specimens indicated that the Hognose hunts by sight and is attracted only by movement. A frog or toad sitting perfectly still was invariably overlooked.

This is a heavy, stout-bodied snake, and it depends largely on camouflage to avoid detection, rather than scurrying away as most of the smaller snakes do. If it finds itself cornered, it draws its body into a loose coil, flattens its head and neck to double normal width, and takes a deep breath, visibly inflating its body. Then it slowly expels the air taken in, producing a long hiss. From this performance it has acquired the names Puff Adder or Blowing Adder, harmless enough in themselves, but encouraging the erroneous popular belief that the expelled air is poisonous. If this hissing

Eastern Hognose Snake shedding its skin



display fails to discourage the snake's tormentor, it will sometimes "play dead" by turning on its back, writhing as though in its death throes, and then lying still. The only flaw in this otherwise convincing imitation of death is that if turned right-side up the Hognose will immediately roll over on its back once again! It is not difficult to handle and never bites, although it may strike with considerable energy — with its mouth closed.

In June or July, the Hognose Snake lays from 10 to 40 eggs in a single clutch hidden in some suitable place such as the interior of a rotting log. The 15 cm young hatch out in late summer.

EASTERN RINGNECK SNAKE Because it is largely nocturnal and spends most of the daylight hours in close concealment, this beautiful little snake is not often seen. It grows to a length of about 45 cm and is coloured a dark bluish gray on the upper parts. The yellow or orange of the under parts come up to form a band across the top of the neck and give the snake its name. It is a gentle creature and silky-soft to the touch.

Most of those we have recorded have been found in rotting logs, under forest floor debris or in rock crevices. One specimen in our collection was taken from the stomach of a Great Horned Owl — a reminder of its nocturnal habits.

In keeping with its forest floor haunts and night-time activity, the Ringneck preys on salamanders, insects, earthworms and also small frogs and snakes.

It is an egg-laying species and in early summer several females may lay their eggs in the same traditional nest, often between the bark and wood of a rotting log. Each female contributes about three eggs. These are white and shaped like medicine capsules about 5 cm long and one cm in diameter. Even stranger is the fact that the eggs continue to grow (by as much as a third) after they have been laid. They hatch in late summer.

Eastern Ringneck Snake

AMPHIBIANS

Salamanders/*Order Caudata*

Mudpuppy	*Necturus maculosus*	**Necture tacheté**
Blue-spotted Salamander	*Ambystoma laterale*	**Salamandre à points bleus**
Yellow-spotted Salamander	*Ambystoma maculatum*	**Salamandre maculée**
Red-Spotted Newt	*Notophthalmus viridescens*	**Triton vert**
Red-backed Salamander	*Plethodon cinereus*	**Salamandre cendrée**
Two-lined Salamander	*Eurycea bislineata*	**Salamandre à deux lignes**

There are many good reasons for thinking that the first vertebrate animal to walk on the earth looked very much like our present day salamanders. Even the superficial visual evidence is convincing, for it is easy to see a modern salamander as a fish with legs, which its ancient forebears certainly were.

But we should not be surprised that today, 3,000,000 centuries after the appearance of their ancestors, salamanders have diverged in some ways from the ancient stock. While most are typical amphibians, dividing their lives between water and land and passing through a larval aquatic stage, there are some that are entirely terrestrial, even in reproduction, and others that are entirely aquatic. Normally, larval salamanders breathe through gills, and acquire lungs only when they change into adults, but one family has no lungs at all, and takes in air through tiny blood vessels in the mouth and body skin. Another, that spends most of its time in the water and reproduces there, goes to shore at the end of its larval period and lives for two or three years on land, then goes back to the water and stays there. In size they vary from less than 5 cm long in some North American species to an Asian species that reaches a length of 1.5 metres. Some of these variations are found among the six species that have been identified here and will be mentioned in the individual descriptions.

They do have one character in common; they are inconspicuous, secretive, and do nothing at all to attract attention to themselves. They do not noticeably affect our lives one way or another. This has undoubtedly helped salamanders to survive but it has also made them among the least known of vertebrate animals, and the great majority of people, on seeing one for the first time, suppose it to be some kind of lizard. Now a lizard, which is a reptile, also has an elongated body and four legs — but there the resemblance ends. Apart from the dry, scaly skin of the lizard, quite unlike the smooth, moist skin of a salamander, the lizard has claws (never possessed by salamanders).

In Algonquin Park there is even less reason for confusion, since Ontario's only lizard is found no closer to the Park than Muskoka and Peterborough.

Salamanders eat only animal food — mostly the ground-inhabiting insects and worms that share their lowly habitat. Though poorly equipped for active predation, they can be quite aggressive when capturing prey, and the spectacle of a salamander subduing an earthworm is, on a small scale, as exciting and dramatic as a wolf attacking a deer. They also eat such things as frogs' eggs and in captivity soon learn to accept such pet foods as meal worms. They never bite or scratch but they should be handled gently and as little as possible, for if the skin is dried out, or the animal overheated, death will follow.

Being amphibians, most salamanders lay their eggs in water, and these hatch out into tadpoles. Since frog and salamander tadpoles are almost always found in the same ponds, it is well to know how to tell one from the other. Both are hatched with external gills, but these are quickly lost on frogs while retained on salamanders throughout their aquatic life. Also, the mouth of a frog tadpole is a small, round opening specialized for a diet of algae, and quite unlike the wide mouth of a carnivorous adult frog. Salamander tadpoles, on the other hand, have wide mouths, similar to those of adults, and they possess true teeth with which they capture and eat small, living prey.

At the latitude of Algonquin Park all amphibians must find some place to spend the winter beyond the reach of freezing cold — no easy matter where the temperature may go down to —30° or —40°C. We do not know exactly where and how the many thousands of Algonquin Park salamanders that spend six months of the year under a metre of snow, manage to keep themselves alive. As a matter of fact, the snow probably provides vital insulation against the cold, and it may well be that salamanders entering hibernation choose places where rotting wood or leaves generate just enough heat to keep their bodies from freezing solid. When the snow has been dispersed by the warm sun and rain of late April, salamanders are always ready to prove that, by whatever means, they have survived again, as they have been doing for more than three hundred million years.

MUDPUPPY This is the most unusual of Algonquin Park's salamanders in many ways. It is the least well known, for one thing, having been collected only once, in June of 1945 in Lake of Two Rivers.

It may well be more common and widespread than this single record would suggest, however. The Mudpuppy, though large — many adults are well over 30 cm (one foot) long — is nocturnal and completely aquatic. Unlike all our other salamanders, it never loses the external gills of its larval stage and never emerges from the water to live on land. It is thus a permanent inhabitant of lakes and large streams and is also unique among our salamanders in remaining active all winter long. In fact, humans most often encounter this strange animal by catching it while ice fishing. Since winter fishing is not permitted in Algonquin Park, it is perhaps even less surprising that we know next to nothing about the Mudpuppy's numbers and distribution within our boundaries.

BLUE-SPOTTED SALAMANDER The background colour of this species which has a maximum length of 14 cm, is black, and this is irregularly spotted with light blue and touches of white without sharp contrasts. This produces a mottled effect that is difficult to describe but suggests the blue enamelware widely used at one time for making cooking utensils. The Blue-spotted is one of the mole salamanders, so-called because they share with moles the habit of spending most of their lives in the dark below ground level, although they often use the interior of a rotten log or a pile of any damp debris instead of a ground burrow. They are what we might call "conventional" amphibians, wandering here and there throughout the summer, hibernating on land in winter, and congregating in the spring soon after the ice is out of their breeding ponds where they mate and lay eggs in the water. The eggs hatch in May, and the young tadpoles live in the water for several months, by which time they have reached adult form and move to the shore to take up their new life on land. There they feed on snails, crickets, slugs, sowbugs and other tiny creatures which share the Blue-spotted Salamander's habitat in and below the forest floor.

On the surface this salamander, with its short legs, cannot hope to outrun most predators but it does have a few "tricks up its sleeve" when confronted with danger. It secretes a slippery mucus on its skin, making it very difficult to hold on to, and may simultaneously lower its head and wave its thick tail in the air. No doubt predators are occasionally fooled into thinking the salamander's tail is its head and end up capturing the tail only.

An estimate of the numbers of Blue-spotted Salamanders can be no more than an educated guess based on the availability of suitable habitat and the frequency of their discovery by search or accident. On that basis all the evidence suggests that this species is common throughout Algonquin Park.

The situation is nevertheless complicated by the presence of a similar but darker and larger form known as Tremblay's Salamander (now confirmed by three specimens found in the Museum area). Tremblay's Salamander exists only as females and it has three sets of chromosomes in its cells instead of two. Two of the chromosome sets are believed to have come from the Blue-spotted Salamander and the other one from the Jefferson's Salamander, a species which is now found no closer to Algonquin Park than extreme southern Ontario. The continued presence here of a hybrid salamander which has no males and only one of its parents nearby is puzzling to say the least but there are two possible explanations. One is that Tremblay's Salamanders may be able to lay eggs without mating at all. Another possibility is that male Blue-spotted Salamanders may mate with Tremblay's Salamanders with the sperm not making any genetic contribution to the eggs but only serving to trigger the process of cell division and growth of the eggs. Either way, the resulting young salamanders would be exact copies of their mothers and would continue on that way, generation after generation.

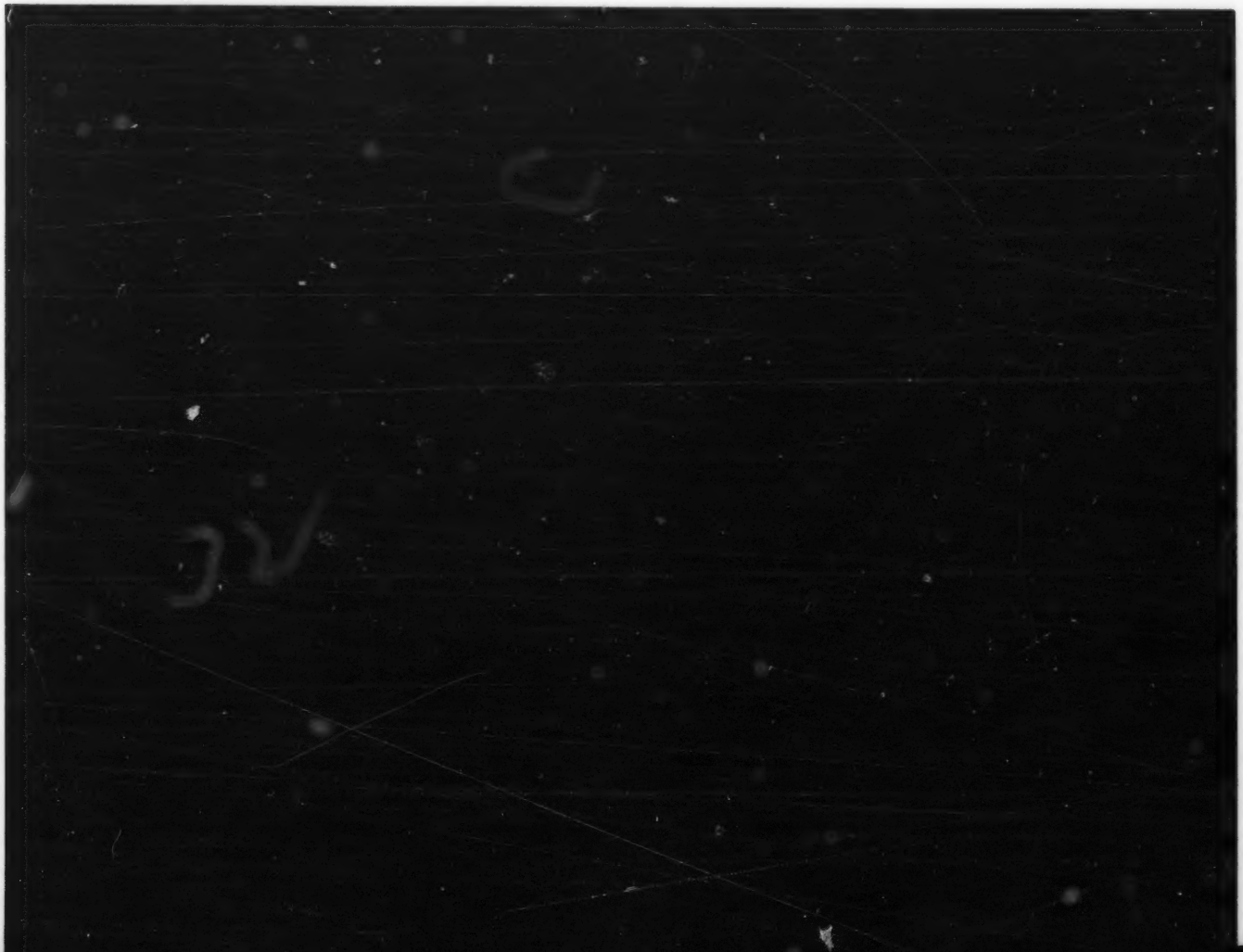
Blue-spotted Salamander

YELLOW-SPOTTED SALAMANDER This is another mole salamander and it has much in common with the preceding species. It is a little larger, however, and has been known to reach a length of 23 cm. Its markings are unmistakable — black or very dark gray, with a row of bright yellow spots along each side from head to tail, and a few extending to the legs. The number, distribution, and habitat preferences of the two species in Algonquin Park appear to be quite similar. Most of those seen turn up by chance, but they may be looked for in fallen logs in an advanced state of decay, or under almost any object that has been lying on the ground for some time in a dampish place. We have discovered them beneath a pile of fallen leaves covering a damp hollow in the ground.

Again like the preceding species, the Yellow-spotted Salamander makes an annual trip to a breeding pond in the spring to mate and lay eggs. This is easy to say, but for a Yellow-spotted Salamander it is not that simple. First, a journey of several hundred metres is no trifling matter for a short legged creature to which even a fallen twig is a fair-sized obstacle. Second is the problem of navigation through the tangled forest floor. Although no one knows exactly how they do it, Yellow-spotted Salamanders return to the same pond year after year from distances of over 500 metres. Not only that, but they enter and leave the pond at or very near the same point every time. Such migrating salamanders are apparently not responding to the sight or smell of water. One study showed that, if moved to the border of another nearby pond, Yellow-spotted Salamanders would ignore the water close at hand and head off in the direction of their "real" pond. Obviously the "lowly" Yellow-spotted Salamander has a few talents we can hardly begin to duplicate.

These talents may not be enough, however, to help the Yellow-spotted Salamander withstand a new peril which we humans have introduced to its world. The spring breeding pools chosen by this and other salamanders are composed almost entirely of melted snow and we now know that the phenomenon of acid rain (and snow) makes this water far more acidic than it used to be. High acidity, especially when combined with high levels of toxic metals like aluminum, can kill salamander eggs or larvae and some experts have predicted that the Yellow-spotted Salamander will go extinct in areas of highly acidic snowfall. This is a cause for concern in Algonquin Park as well although, so far, our monitoring program shows that Yellow-spotted Salamanders continue to breed here quite successfully. We have one case, in fact, of a lake that is so acidic that fish cannot live in it but which nevertheless is used by thousands of salamanders as a breeding location. Apparently, at this point at least, the absence of fish is more beneficial than the high acidity is harmful. Let us hope that continued acid precipitation does not change this for the worse.

Female Yellow-spotted Salamander laying eggs



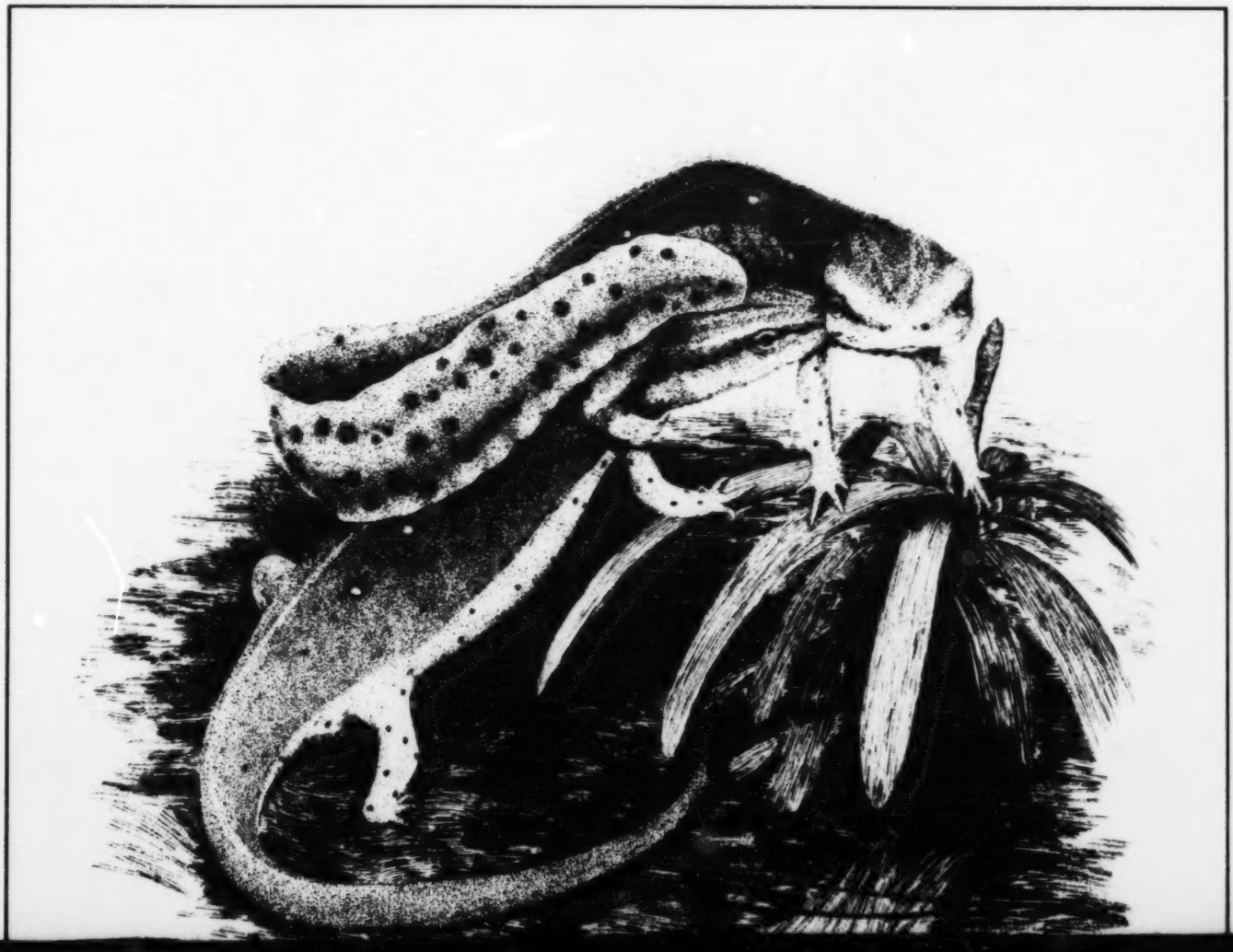
RED-SPOTTED NEWT The word "newt" is an old English name for a common British salamander and, more recently, has been applied to other similar salamanders which live elsewhere. The Red-spotted is the only newt in eastern Canada, and it has been found as far north as Lake Nipigon. Adults are generally between 10 and 12 cm long, coloured some shade of green, yellow, or brown on the upper parts, yellowish beneath, with small black dots all over, and a row of about a half-dozen bright red spots circled by a dark ring along each side. Compared with the smooth, slippery skin of most salamanders, the skin of a newt is rough, as though finely wrinkled, and the vertical depressions, that mark the sides of most species, are hardly noticeable. Newts may be found in quiet, shallow ponds or bays where there is some debris or aquatic vegetation to provide hiding and resting places, and an absence of predatory fish. They eat a variety of animal food, including insects, worms, and frogs' eggs, and they lay their own eggs singly in the water, usually attached to aquatic plants.

The complex life history of this newt is perplexing. When the young newts have completed their larval aquatic stage and assumed adult form, most of them lose their external gills, leave the water, and remain on land continuously for a period of one to three years. During that time their colour is a conspicuous orange-red and they are known as efts. ("Eft" is another old English name for a salamander). In spite of their bright colour, the efts make little attempt to conceal themselves, and sometimes wander about on the surface of the ground in broad daylight. Such bold behaviour seems foolhardy for any salamander, let alone one which is bright red. Nature, however, is full of examples of creatures which seemingly advertise their presence. Such bright colours are usually associated with a bad taste or even poison and the eft is apparently no exception. Snakes have been observed to spit out efts which they have attempted to swallow, and then try to wipe their mouths clean. Probably one such experience suffices to teach most predators that the bright colour is a warning, not an invitation.

After two or three years on land the efts return to the water, losing their bright colour, and developing a powerful finned tail. Henceforth they are quite aquatic and feed on small molluscs, crustaceans and insect larvae in the water. Their ties with land are not quite broken, however, for they must return to the surface to breathe and onto land each fall to hibernate. Such an unorthodox life history may seem needlessly complicated and in some areas of its range the Red-spotted Newt dispenses with the eft stage and changes directly into a gilled, truly aquatic adult.

In either case the adults also have the toxic skin qualities of the eft and studies have shown newts to be remarkably free from attack by leeches.

In mating dance, male Red-spotted Newt clasps female with his hind legs and fans her with his tail



RED-BACKED SALAMANDER This is one of our two species of lungless salamanders, a large family with some 35 members in eastern North America. With neither lungs nor gills, they obtain their oxygen by absorption through the lining of their mouths and their skin. This will only work, however, if the skin is moist and, not surprisingly, lungless salamanders are restricted to damp environments.

The Red-backed Salamander is small, seldom reaching 10 cm in length, and the red of its back is not the vermillion red of a newt's spots, but rather a reddish brown. While this colour phase is the most common in Algonquin specimens, a "lead-backed" variation (which is uniformly dull gray over the sides and back) also occurs here. In both phases the under parts are white, sprinkled with gray specks, creating a salt-and-pepper effect.

It is almost a definition of an amphibian that it returns to the water to mate, and that the eggs are laid in water, left unguarded by the adults, and hatch into gilled, aquatic larvae. The Red-backed Salamander is a heretic among our six salamanders because it breaks not one, but all of these "rules." Mating takes place during the fall in moist forests but it is not until the following summer that the female lays the eggs. "Lay" is perhaps not a good word because the eggs are hung in bunches of seven to ten on stalks attached to the ceiling of a damp cavity in a rotting log or similar location. Then, instead of leaving her eggs to their fate, the female stays with them for two months, protecting them against predators, eating any that go bad, and keeping them moist with her own body. The gilled aquatic stage through which most amphibians pass occurs within the eggs, and the gills usually (but not always) disappear just before the young hatch out. As one final violation of the amphibian orthodoxy, the young may stay with their moist mother for a few weeks, especially if the autumn is dry, before starting out on their own.

As with other, more conventional salamanders living in the same habitat, the Red-back feeds on snails, worms, slugs, insects and spiders. The consistency with which it may be found with a little searching, suggests that it is the most common salamander in Algonquin.

Red-backed Salamander

TWO-LINED SALAMANDER Another salamander without lungs, this one is very close to the last in size, perhaps averaging slightly longer. A shoreline species, it frequents small, cool streams, where it conceals itself under stones or any debris at the water's edge. It spends considerable time in the water and commonly escapes capture by swimming, but also wanders a good deal on land, though seldom more than a few metres from the stream.

Mating in the Two-lined Salamander takes place in both spring and fall. Many salamanders have interesting mating rituals and this species is no exception. First, the male caresses the female with his nose, stimulating her with secretions from glands on his neck and head. The female then straddles the back of the male. Still carrying her, he walks slowly along the stream bottom where he finally deposits little packages of sperm. As with all our salamanders, the female Two-lined then picks up these packages with her cloacal opening, and retains them within her body until she is ready to lay her eggs (which in the case of a fall mating is not until the following spring). The eggs are fertilized just before they are laid, and attached separately under rocks or other objects in running water. The young are typical gilled tadpoles, but while other species change into adult form in their first year, the young Two-lined continue as aquatic larvae for two or three years. The adults are yellowish brown with a distinct dark line along each side.

There are many small, half-concealed creeks in Algonquin which might support populations of this little salamander, but because of its curious habitat it is likely to be seen only as the result of deliberate search. Trout streams are not a good place to look, as small salamanders and hungry fish do not get along well together.

Frogs, Toads, and Treefrogs/*Order Anura*

American Toad	*Bufo americanus*	**Crapaud d'Amérique**
Spring Peeper	*Hyla crucifer*	**Rainette crucifère**
Eastern Gray Treefrog	*Hyla versicolor*	**Rainette versicolore**
Striped Chorus Frog	*Pseudacris triseriata*	**Rainette faux-grillon**
Bullfrog	*Rana catesbeiana*	**Oua-oua-ron**
Green Frog	*Rana clamitans*	**Grenouille criarde**
Mink Frog	*Rana septentrionalis*	**Grenouille du Nord**
Wood Frog	*Rana sylvatica*	**Grenouille des bois**
Leopard Frog	*Rana pipiens*	**Grenouille léopard**
Pickerel Frog	*Rana palustris*	**Grenouille des marais**

The three groups of animals named above are all distinct families and all are represented in Algonquin Park. We have one toad, three treefrogs and six "true" frogs. They all belong to one order of amphibians but unfortunately the English language has no single name (like "salamander") to include all families in the order. Rather than laboriously repeat "frogs, toads and treefrogs" every time we run up against this problem, we hope you will permit us to stretch a point in this discussion and just say "frog" when we mean all three families.

Whatever the failings of our language we are all aware of "frogs" and make use of them in many ways — as bait for catching fish, subjects for teaching biology, for medical research, and in some cases as food. The only time we pause to appreciate them is when we first hear them in spring, among the earliest unmistakable messages that winter is over at last. For the rest of the year our attitude remains much the same as it was 300 years ago when Isaac Walton wrote in his famous book "The Compleat Angler" on how to fish with a frog — "Thus use your frog: put your hook through his mouth and out at his gills (sic), and then with a fine needle and silk sew the upper part of his leg with only one stitch to the leader, or tie the frog's leg above the upper joint to the leader; and in so doing use him as though you loved him."

It is a curious fact of human nature that most of us hardly think twice of abusing a frog in such fashion, whereas we would be horrified to see someone do the same thing to a mammal or a bird. Even if it were not true that frogs in southern Ontario are declining before the one-two punch of habitat destruction and commercial exploitation, we would still maintain that it is time frogs received more than our traditional indifference and abuse.

Beyond the immeasurable role played by frogs as a food source for many "higher" forms of life, they are animals of considerable interest in their own right.

Whereas salamanders have retained the generalized body form of their most primitive amphibian ancestors, frogs have evolved into quite different creatures, highly specialized in many ways. The most obvious of these specializations is the extreme development of the hind legs, for jumping and/or swimming, and with this, the loss of the tail.

A second major feature is the attachment of the long sticky tongue at the front of the mouth and its use as a quick-as-a-flash insect-grabber.

Frogs and toads are also different from other amphibians in their ability to produce sounds and to hear them. Salamanders do not have external ears, and their "hearing" consists of varying degrees of sensitivity to vibrations carried by the ground. Frogs and toads also lack external ears, but the tympanum, or eardrum, is itself external, and may be seen as a smooth disk set in the skin just behind the eye. The males are always noisy during the breeding season, and produce a variety of sounds, many of which are quite musical. These sounds are used for the same purpose as those of birds, to proclaim territories and attract mates, so it is quite proper to refer to them as singing. They are formed by mechanisms essentially similar to our own, with air inhaled through the nostrils passing across vocal chords in the larynx between mouth and lungs. The sound is greatly amplified by elastic-walled resonance chambers, normally concealed by the skin but expanding and ballooning outward when sound is being produced. They may be in the form of a single sac on the throat, a pair of sacs, one on each side near the front legs, or, in a few species, permanently internal. Man was not the first to amplify his voice to obtain greater coverage. More about frog songs will be found in the discussion of separate species.

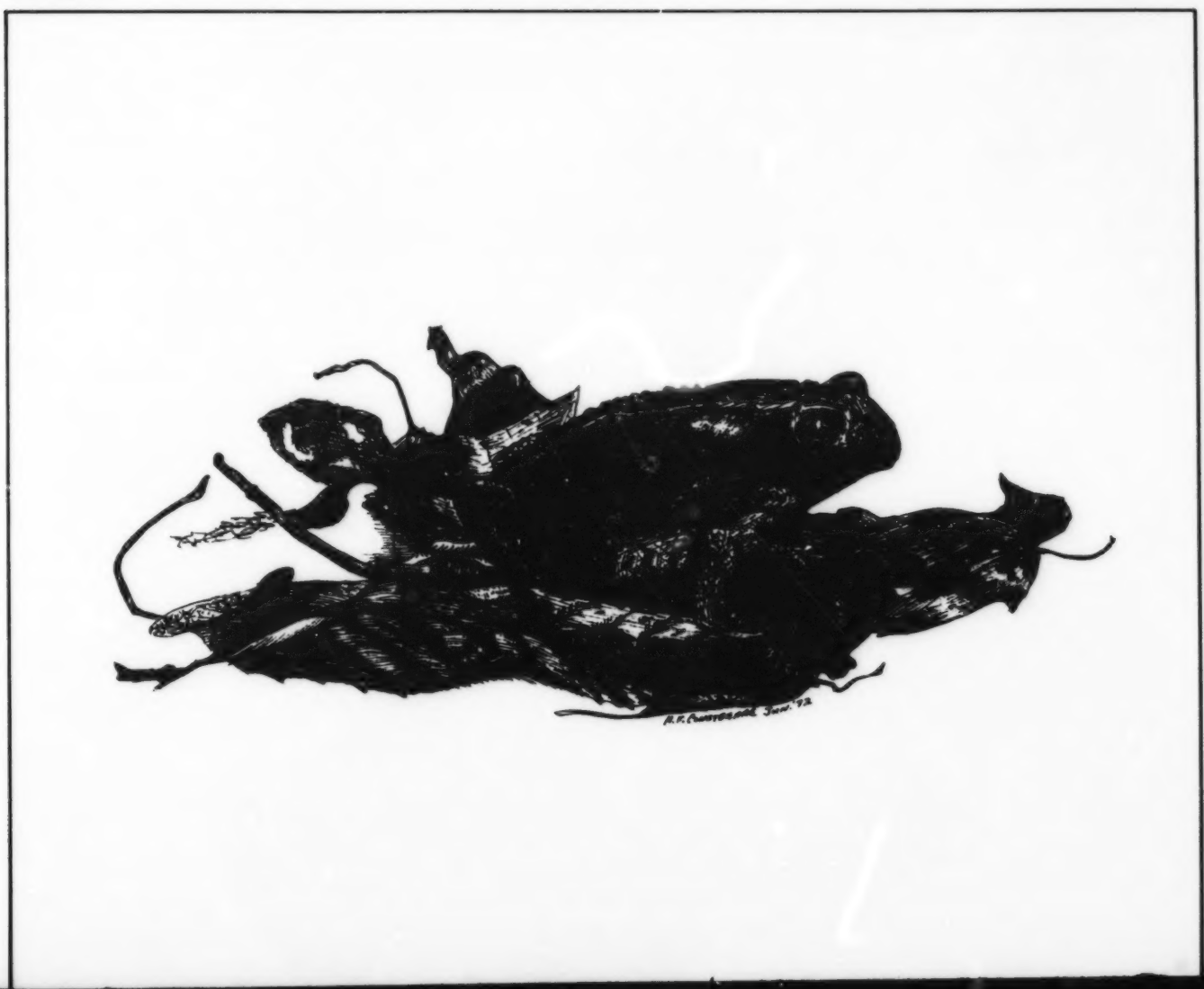
AMERICAN TOAD There are few animals that are so well known to so many people as the American Toad. This is at least partly because it is not so easily displaced by human intrusion into its natural habitat as are most wild creatures. Thus, while it is very much part of the Algonquin scene, most Park visitors already know it from back home as a welcome insect-eater in the garden.

In spite of its familiarity, most of us have mixed feelings when it comes to physical contact with a toad, and some unfounded beliefs still persist, such as, that it is poisonous, or that handling one will induce the growth of warts. Nearly four hundred years ago Shakespeare expressed this attitude when he said — ". . . the toad, ugly and venomous, wears yet a precious jewel in his head," and in this brought out a fact that may be verified by a close-up view, that the toad has very beautiful eyes. It is also true that if handled roughly, it will secrete a white liquid from the numerous warts and the large glands behind the eyes. While this will not harm the skin or cause warts, it is very poisonous and can irritate mucous membranes, such as on areas around the eyes or mouth. Many, if not most, amphibians have more or less toxic skin secretions and the American Toad is not exceptional in this regard. Certainly the secretion does not appear to deter all snakes, and the toad has evolved another defensive mechanism. When seized by a snake, a toad at once inflates its body with air to just about double its normal size, and only a large snake is able to swallow a large toad.

Unlike frogs, the toad often walks on all fours or moves in a succession of short jerky hops. It also has a rough skin which is much drier than that of a true frog or treefrog. Like all amphibians, however, the toad will die if it loses too much moisture to the surrounding air. Perhaps for this reason, therefore, toads are most active at night when the air is cooler and more moist. During the day toads usually stay hidden, often burrowed into the ground. They dig with their hind feet, and the speed with which they can vanish into the ground, while still keeping the normal sitting posture, has to be seen to be appreciated.

The toad likes to wait until the water is reasonably warm before breeding, so the season may vary considerably depending on weather. In Algonquin it is usually in the latter half of May, and it is then that we hear their sustained and highly musical trills coming from the shallow ponds where numbers have concentrated to mate and lay eggs. Often they use temporary ponds, and sometimes these dry up before the young toads have developed enough to leave the water. Whatever the cause, however, very few tadpoles can ever become adult toads. Each female may lay as many as 5000 eggs and simple arithmetic will suffice to show that if they all survived, the earth would be overrun with toads in a very few years.

American Toad



SPRING PEEPER From circumstantial evidence, this would seem to be the most abundant frog in this Park, and it is certainly the smallest — so small that it could sit comfortably on your thumbnail. If it were not for its singing during the mating season, which starts in late April and continues through most of May, it could be overlooked entirely. It spends the rest of the year on land among low bushes and long grass where it is seen only by rare accident and where it betrays its presence only by sporadic peeping on into October.

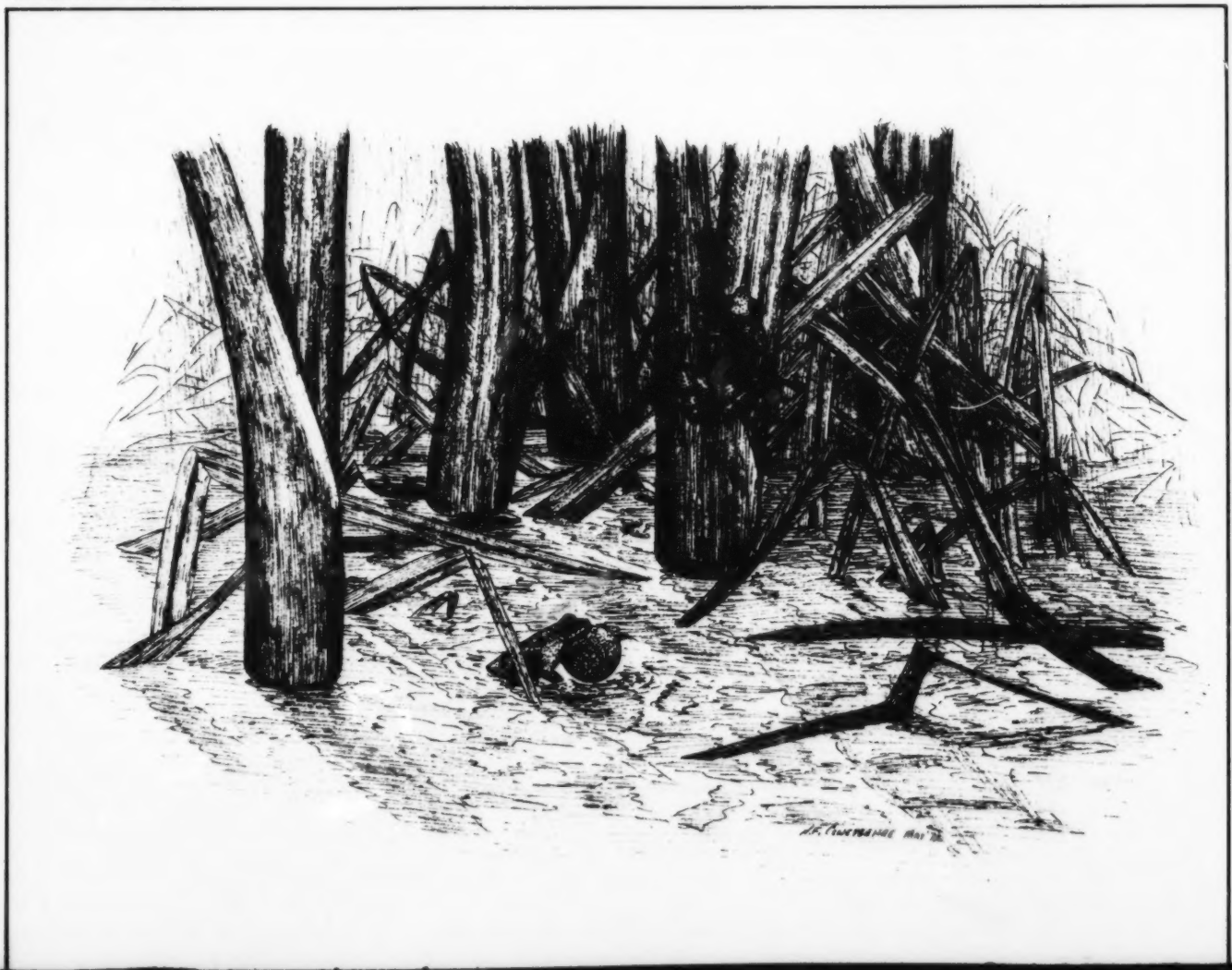
Its colour is a pale brown, and it is identified by a dark X-shaped mark covering most of its back. As one of the treefrogs, it is equipped with sticky discs on the ends of its toes, which enable it to move about freely among vegetation, and rest as comfortably on a smooth, vertical surface as on the level.

The name Peeper is descriptively perfect, as the voice of this frog consists of a single, penetrating "peep" repeated over and over for hours at a time, chiefly in the evening and at night, but to some extent in the daytime. During the six-week breeding season they gather in great numbers in favourite ponds, and their nuptial singing dominates all other sounds in the neighbourhood. The eggs are laid singly in the water, usually attached to aquatic plants, and following a summer tadpole stage the young frogs leave the water and from then on spend at least ten months of each year on land.

STRIPED CHORUS FROG This species is included in our list of Algonquin amphibians on the basis of one individual heard singing at Achray on the east side of Algonquin on April 28, 1985. It is a very small member of the treefrog family, barely larger than a Spring Peeper, and like that species, it makes its presence known chiefly in the early spring breeding season, sometimes beginning even before the ice is all gone.

The call is usually likened to the sound produced by drawing a thumbnail slowly over the teeth of a pocket comb and it is a characteristic sign of spring in southern Ontario. Its virtual absence from Algonquin Park is a good illustration of how reptiles and amphibians are so sensitive to the increasing severity of climate as one goes north, or climbs up on to an elevated area like Algonquin. To the southwest of the Park, Striped Chorus Frogs come no closer than near Bracebridge. To the east they are common near Pembroke and we should not be surprised that the only Algonquin record comes from the low east side, not far from the Pembroke population but in an area of the Park seldom visited by naturalists during the Chorus Frog singing season.

Spring Peepers singing



EASTERN GRAY TREEFROG Widely known as a tree toad because of its general toad-like appearance and somewhat rough skin, this treefrog is a giant beside its tiny relative the Spring Peeper, commonly reaching a body length of 5 cm.

The "gray" in the name of this species is somewhat misleading because even if gray is the most usual colour, these little frogs have the spectacular ability to match the colour of their background whether it be bright green, brown, or gray. It takes an hour or more for the Gray Treefrog to accomplish a major colour change, but once completed it melts uncannily into the background, whether it be a lichen-encrusted tree trunk, fresh green foliage, or dead leaves on the forest floor.

If you are lucky enough to see a Gray Treefrog you will find that it sits absolutely motionless except for the barely perceptible, rapid breathing motions of its throat. After several hours have gone by and you have concluded that the treefrog is in torpid oblivion of all its surroundings, you may suddenly be aware that it is on another branch a metre away dangling by one hind leg and busily stuffing a helpless moth into its mouth. The all-seeing treefrog rarely misses either its prey or its new perch.

In Algonquin Park this species has a June breeding season, during which it gathers in suitable ponds for the purpose of mating and laying eggs to inaugurate the next generation. At this time the males are persistently vocal from dusk to midnight with repeated bird-like trills lasting about two seconds. After this community effort the frogs scatter over the surrounding country and lead solitary lives, usually well above the ground in trees. Like the American Toad they derive some benefit from the works of man, as they are largely nocturnal and are often found in the vicinity of outside lights, or even lighted windows, where they find a ready supply of the night-flying insects which make up most of their food. The extensive stonework around the West Gate of Algonquin Park, with its all-night lighting, is always a good place to look for Gray Tree Frogs. They are more vocal than most frogs after the breeding season, and their musical call may be heard occasionally throughout the summer, most often in warm, humid weather.

Eastern Gray Treefrogs

BULLFROG The three preceding species were treefrogs, with sticky pads on their toes, changeable colours, and an ability to climb. The Bullfrog is the first of the true, or just ordinary frogs, with nothing but the standard equipment we expect to find on a frog — long hind legs with big feet and webs between the toes for jumping and swimming, a smooth skin, a big mouth, bulging eyes, and a voice that comes out as some variety of croak. These easily recognized characters belong to all true frogs and are already known to most people. We have only to learn the relative sizes of six different species, the distinctive points of colour or form which set one apart from the others, where and when each is likely to be found, and the kind of noise each one makes, and presto! we are on our way to becoming an expert on Algonquin Park frogs.

Heading the list is the Bullfrog, possessing all the features just mentioned in what we might call giant size, for it is the largest frog in eastern North America, commonly growing to a length of 15 cm and rarely up to 20 cm. Its colour is not conspicuous, usually greenish brown with dirty white or pale yellow under parts and, on mature males, a definitely yellow throat. Large specimens could be safely identified by size alone, but frogs have to grow up, and there are always more small Bullfrogs than large ones, all looking very much like Green Frogs of similar size. Fortunately there is an easy way out of this dilemma. Usually, when we see a frog we are looking down at it, so we are able to get a good look at its back. On Green Frogs the skin of the back shows a narrow but distinct ridge running down each side. These are easily seen if we remember to look for them. The Bullfrog has a perfectly smooth back with no sign of ridges, so, no matter what the size, or how much it otherwise looks like a Green Frog, if the ridges are not there it is a Bullfrog.

This is a completely aquatic frog, seldom seen on land, and usually found associated with rather extensive bodies of water. Lakes with weedy bays full of water lillies are a favoured habitat. Its voice can be reasonably compared to the bellowing of a bull, and to hear a large congregation in full chorus at close range is a memorable experience. It will swallow just about anything alive that it can get into its big mouth, including mice, small birds, snakes, and other frogs of any species. It may very well be that the Bullfrog has a significant effect on the numbers of some smaller frogs, notably the Mink Frog, which prefers a similar habitat. During the breeding season the males establish territories and struggle violently with intruding rivals. The tadpole stage lasts for two years, and it may be another two or three years before breeding maturity is attained. It is a warm weather frog and is not in full voice until close to midsummer.

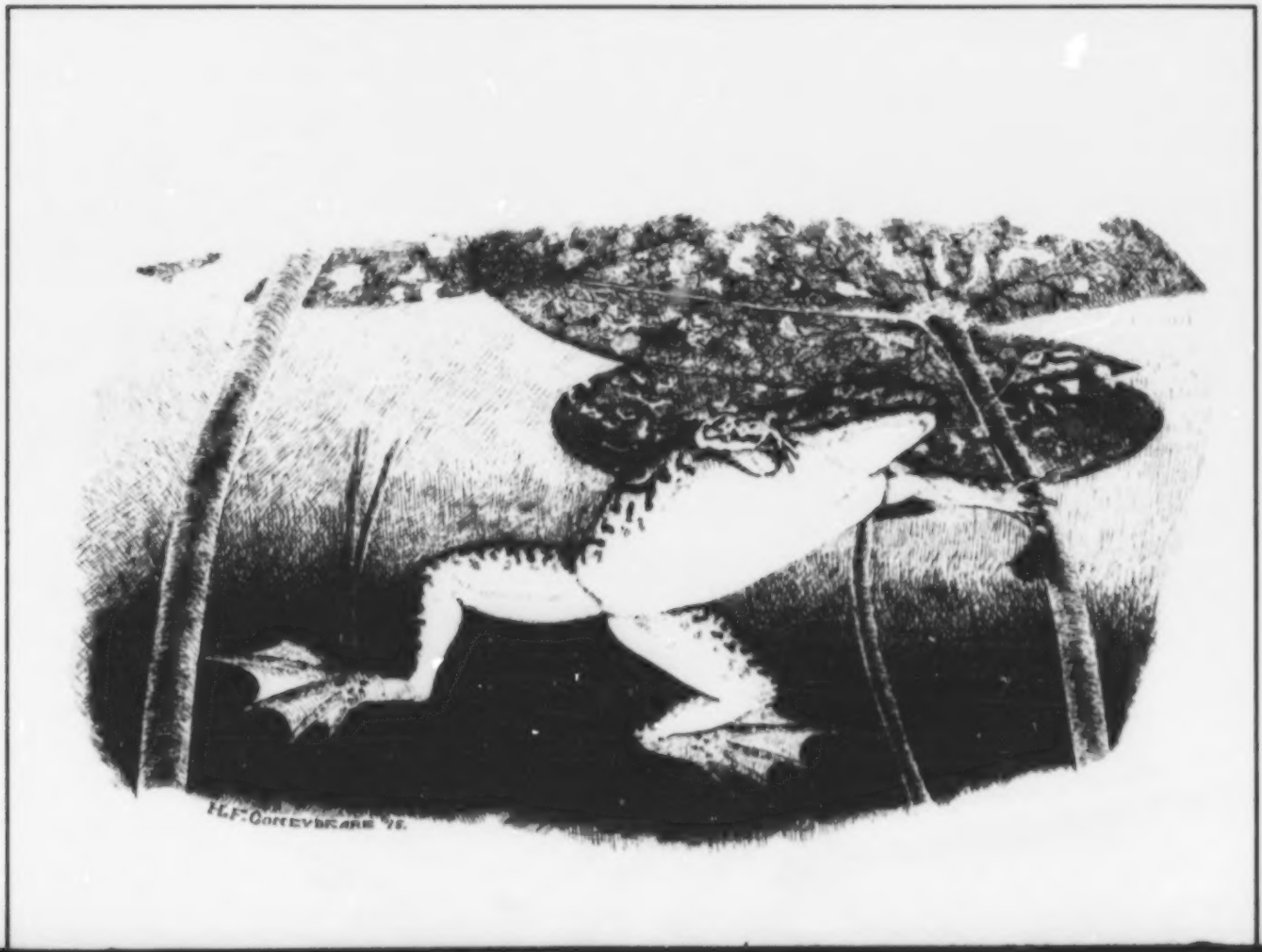
Bullfrog

GREEN FROG Although the Green Frog does not often reach a length of more than 10 cm it can be mistaken for a small Bullfrog, as its colour pattern is much the same and the mature males also have yellow throats. The presence of ridges on each side of the back is a sure-fire way to separate the two species, however; Green Frogs have them, Bullfrogs don't.

Although the Green Frog does not breed until early summer, it is quite hardy, and often may be found in small ponds or ditches in early spring before all the ice has disappeared. At such times it is likely to be sluggish and may allow itself to be handled without attempting to escape. As the weather warms, breeding congregations form in suitable ponds and the frogs become vocal, their song consisting of a single note repeated in groups of one or two and sounding a bit like the "plunk" of banjo strings. They tend to sing in bursts, one frog starting and others joining in as the chorus spreads over the pond and reaches a climax, then stops suddenly, only to start again almost at once.

The eggs are laid in late May and early June, and hatch within a week, but the tadpoles do not usually change to frogs until the following year. Then they disperse in all directions on land, travelling many hundreds of metres. This may not seem very far but when you remember that even an adult Green Frog is very small, such distances are quite respectable indeed. Even more impressive (as shown by a study here in Algonquin) is that each frog has the ability to return each breeding season to its original pond, and even to the particular place in the pond, from as far away as 600 metres. Of course many of these travellers never reach their destination and instead end up helping to feed the many carnivorous animals that depend on such surplus populations for a living.

Green Frog



MINK FROG A true northerner, the Mink Frog is found as far north as James Bay and has a very limited distribution south of Algonquin Park. It is not a large frog, generally under 8 cm long, and is coloured a dark olive-green, with blackish, light-edged blotches that give it a "marbled" effect that is difficult to describe.

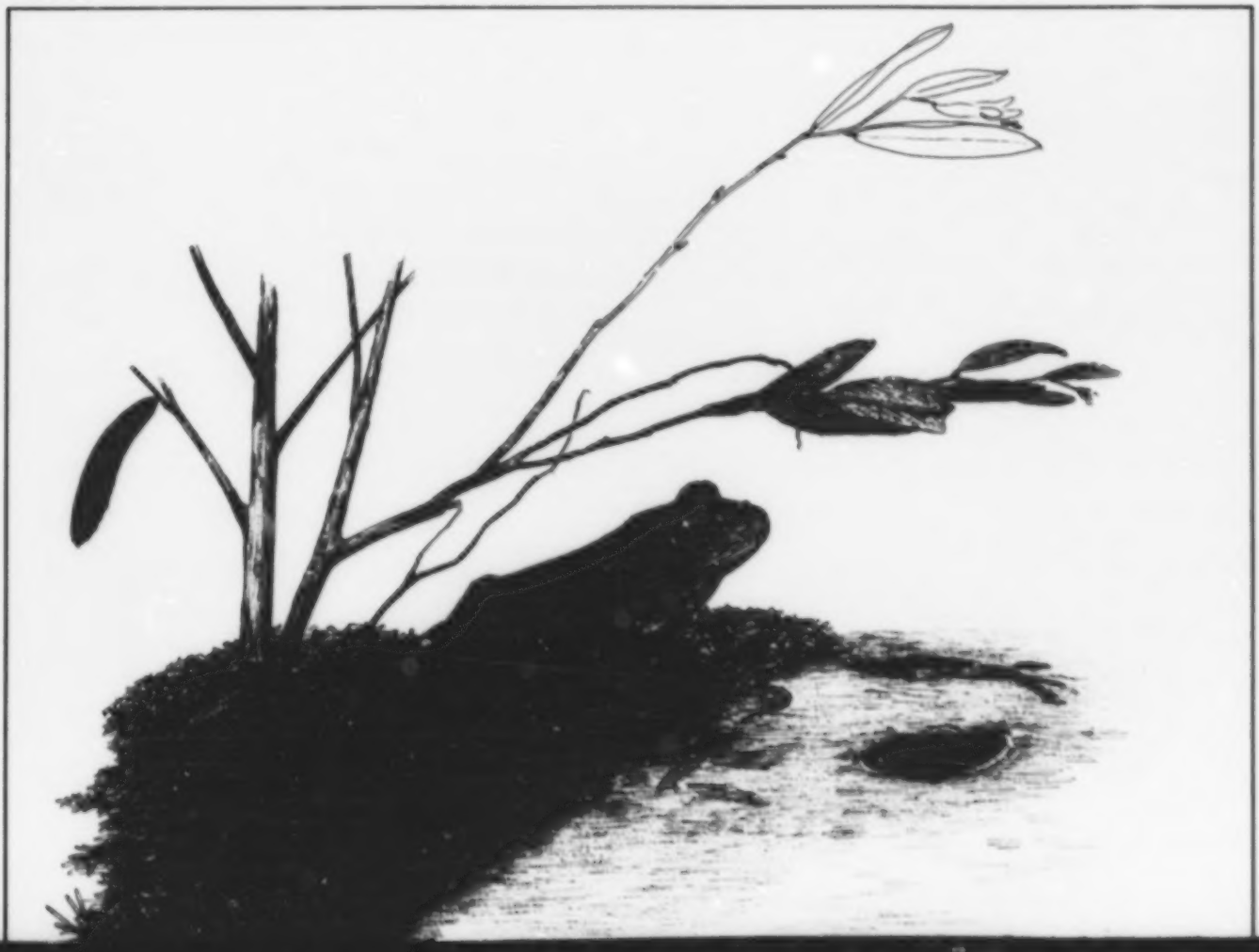
Like the Bullfrog, this species seldom leaves the water of the sluggish rivers or shallow, boggy bays it prefers. It typically rests at the surface with only the eyes and nostrils protruding. If prey is spotted, the Mink Frog turns to face it and with alternate strokes of the hind legs, slowly swims to within striking distance. It also uses the underwater approach, surfacing near the prey and then lunging at the victim.

The voice of the Mink Frog is one of the more fascinating and distinctive midsummer night sounds of Algonquin Park. To most people it suggests the sound made by striking together two hard objects, such as two stones, repeated quite rapidly three or four times. It may be heard at any hour but most often at night and is one of the latest frog songs, often continuing well into August. Thanks to this unmistakable voice we are always aware of the Mink Frog's presence and may even obtain a reasonable estimate of its numbers.

When it comes to appearance, however, the Mink Frog is much less distinguished and, in fact, may easily be mistaken for the Green Frog. The best way to tell them apart is to look at the markings on the hind legs. On Mink Frogs they run along the legs whereas on a Green Frog they go across (at right angles to the axis of the leg).

The Mink Frog got its name from the fact that when caught, especially if roughly handled, it gives off a disagreeable odour, said to resemble that of a mink. (If that doesn't help, it may remind you of rotten onions.)

Mink Frog



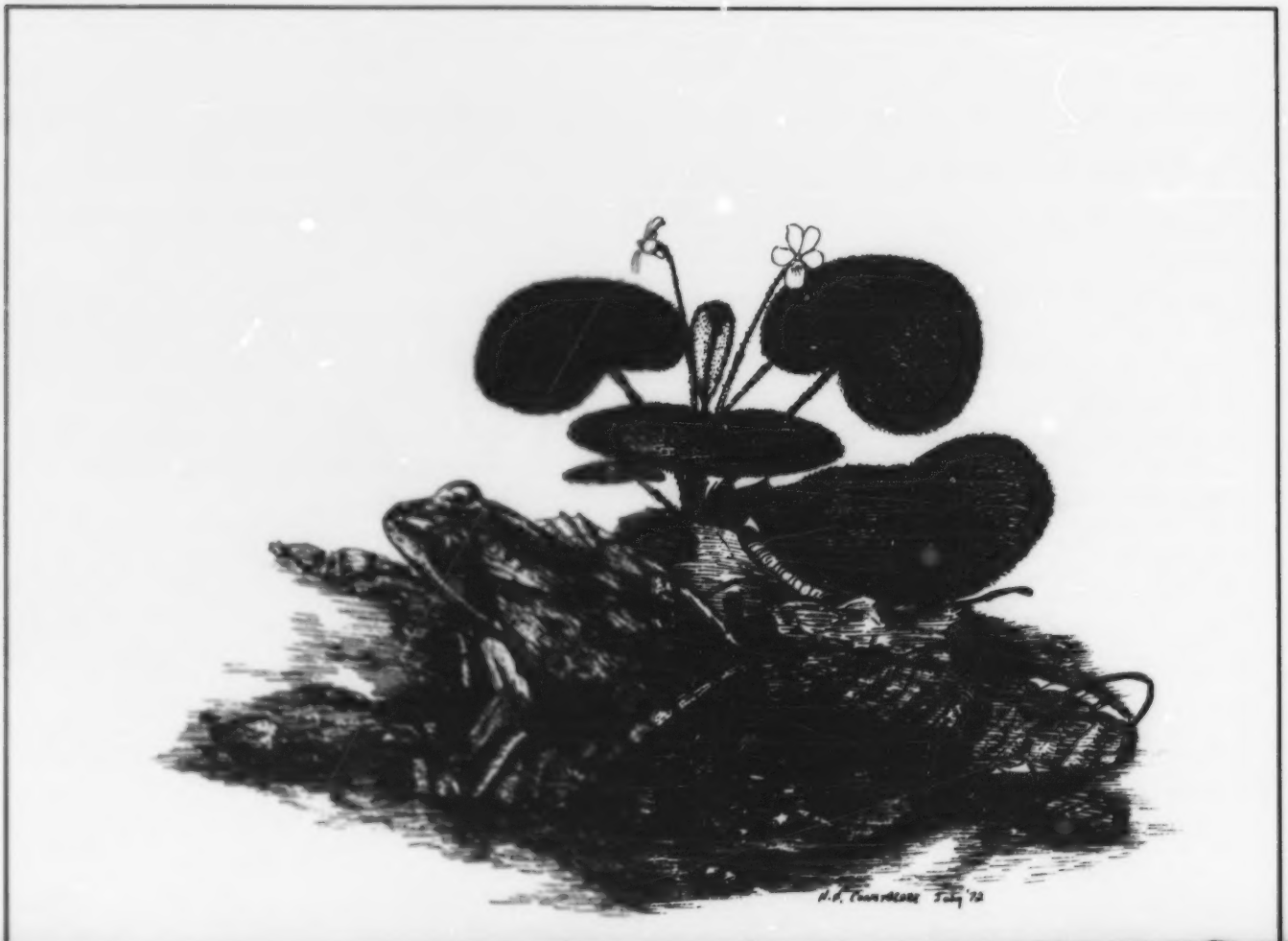
WOOD FROG Seldom more than 5 cm long and generally less, this frog is coloured some shade of brown, from a light tan to reddish, with light under parts sometimes vaguely spotted, and faint dark bars on the legs. Its distinctive marking is a black mask, starting with a dark line from the nose and spreading into a triangle on each side of the head to a point just behind the ear. These dark areas are outlined by narrow lines of golden yellow, producing a clean-cut pattern that is most attractive.

It is well named Wood Frog, for it is rarely seen far from a forest of some kind, and a typical breeding pond is usually surrounded by trees. Except for the treefrogs (which spend more time in trees and bushes than on the ground) this is the most terrestrial of Algonquin frogs, living its whole life on land, outside of the short breeding season. Because it prefers shade and dampness, the Wood Frog is not often seen by most of us, but it will be found from time to time by those who do much off-the-trail travelling on foot, and then its "robber mask" will tell what kind of frog it is at a glance. Not only is it found all over Algonquin Park, but it shares with the Mink Frog the distinction of having the major part of its range in Canada, reserving for itself the record of having the most northerly range of any reptile or amphibian in North America.

This is the first frog heard here in spring, but the date depends on ice conditions, and there may be a difference of a week or more between the higher parts of Algonquin Park and the surrounding country. Less than 30 km from the Park's west boundary, at an elevation of 300 m, the average date is April 20, but in the vicinity of the Park Museum, at 450 m, it is close to the first of May. During its short breeding season of not more than two weeks, it sings by day and by night. Its voice has some of the grating quality heard from the Leopard Frog, but is phrased quite differently into short, high-pitched croaks, suggesting the quacking of ducks. Can this be called music?

In our Introduction we pointed out that frogs use their voices for the same reasons that birds use theirs, and as birds are said to "sing," although many of their "songs" are anything but melodious, the same terms are equally applicable to frogs. But the names we give to their notes are not important. Anyone who is abroad in the season of melting snow and hears a chorus of Wood Frogs joining the song of the first Robin and the honking of northbound geese, will not argue about whether or not it is music.

Wood Frog



LEOPARD FROG Because it spends most of its summer on land, this pretty frog is seen more often than most by the casual observer.

Even so, the Leopard Frog's most common colour is grass green, with rows of round black spots down the back, and it is well camouflaged in the grassy areas it prefers. Your first view of it is likely to be of a frog on the move, as it makes two or three long leaps and then sits motionless, relying on its colour for concealment. A little patience and stealth at this point may get you within camera range, or even allow you to catch a frog, if you are quick enough. A Leopard Frog may be pale brown instead of green under its spots, but green seems to predominate in Algonquin Park, and in any case the conspicuous spotted pattern will separate it from any other except the rare Pickerel Frog. The cleared area adjacent to the Algonquin Park Museum is a good example of typical habitat, and it also illustrates another characteristic — there is usually a lake, pond, or marsh not far away.

The eggs of the Leopard Frog are deposited in ponds, lakes or flooded swamps in April and early May, and at that time its unique, if not very musical, voice is added to our varied frog chorus. It is impossible to describe the sound by the use of words. The author of one of our better frog guides calls it "a deep rattling snore interspersed with clucking grunts," and while we do not think it is quite that bad, it does resemble a snore. Nevertheless, when heard against a background of Spring Peepers and Wood Frogs, as it usually is, it well deserves the name of music.

The comparative ease with which this abundant frog may be captured in readily accessible locations makes it particularly subject to predation, including human use. From the single fisherman who collects a dozen for an hour's bass fishing to the biological supply houses that measure frogs by the ton, everybody preys on the Leopard Frog, including carnivorous mammals, birds, and reptiles. Apart from its use as bait, it contributes much to human welfare, as vast numbers are used by student biologists and in medical research.

Elsewhere in Ontario our inclination to replace grass with concrete and drain wet areas, coupled with an ever-increasing demand for experimental animals, could eventually catch up with even the Leopard Frog. It may seem a little far-fetched at the moment, but such pressures have already made the Bullfrog quite rare in many places. It has also been a feature of endangered species that their disappearance seldom receives significant public notice until it is almost too late. In Britain, for example, special reserves have been established to protect that country's few remaining populations of its one native frog. We hope, but cannot be confident, that a century from now the Leopard Frog will still be common in many areas besides Algonquin.

Along with the Bullfrog, Pickerel Frog, and Green Frog, this species hibernates in water (all the others hide on land under leaves or logs). To hibernate, the Leopard Frog excavates and half buries itself in a shallow pit on the preferably sandy bottom. It cannot hide completely because its skin, through which all winter "breathing" is accomplished, must remain in contact with oxygenated water. The incomplete concealment of the hibernating frogs means that many are found and eaten by such underwater predators as trout and otters. The Leopard Frog never gets a break, even in winter.

Leopard Frog

PICKEREL FROG This is the only Algonquin frog which could be called scarce, for we have records from only eight locations, but it may be more common than we realize. For one thing it is easily confused with the Leopard Frog and may often escape notice as the distinct species it is. A second consideration worth noting is that in at least one of its known locations (along Carcajou Creek on the east side) the Pickerel Frog appears to be common and it may well be that the Park has other centres of local abundance that we don't yet know about.

The basic colour of a Pickerel Frog is light brown, with the two ridges down the sides of the back showing clearly, because they are set off by two rows of square or oblong black spots down the middle of the back, and a few extra ones on the sides. A typical Leopard Frog is green rather than brown, and has round, instead of square spots. Unfortunately, however, Leopard Frogs are not always "typical," and many strongly suggest Pickerel Frogs. One way to be sure is to catch the frog (easier said than done) and examine its underside. If it is an adult Pickerel Frog there will be a patch of bright yellow or orange in the groin region and on the underside of the legs.

The most likely place to find one is in a bog or beside some small sheltered spring creek, often at the pool where the spring emerges from the ground. It will not leap away as the Leopard Frog does, but will jump straight into the water. So if you find one sitting on the bank, study all the details before you try to catch it, because you will probably miss, and once it takes a header into the water you may not find it again. The song resembles that of the Leopard Frog, but is shorter and has less volume.

The skin secretions of the Pickerel Frog are much more toxic than those of other Algonquin frogs. Other frogs will die if kept in the same jar with this species, and snakes have been known to reject Pickerel Frogs after seizing them.

Those who travel the remote areas of the Park by canoe have a chance of finding this rare frog beside some of the countless little creeks that feed our larger waterways, and you would be adding to the general knowledge of an endangered species by reporting all the details of your observation to the Park Museum.

References

For further information about reptiles and amphibians we would suggest the following: —

1. A Field Guide to Reptiles and Amphibians of Eastern North America
   by Roger Conant
   Houghton Mifflin Co. 1958

2. The Snakes of Ontario
   by E.B.S. Logier
   University of Toronto Press 1958

3. The Frogs, Toads and Salamanders of Eastern Canada
   by E.B.S. Logier
   Clarke, Irwin & Co. 1952

4. Introduction to Canadian Amphibians and Reptiles
   by Francis R. Cook
   National Museums of Canada 1984

5. Voices of the Night (record including the songs of all Ontario frogs)

Checklist of the Reptiles and Amphibians of Algonquin Provincial Park

CLASS REPTILES	REPTILIA	REPTILES
ORDER: TURTLES	TESTUDINATA	TORTUES
Family: Snapping Turtles	Chelydridae	Tortues voraces
Snapping turtle	*Chelydra serpentina*	Chélydre serpentine
Family: Pond Turtles	Testudinidae	Tortues d'eau douce
Spotted Turtle	*Clemmys guttata*	Tortue ponctuée
Wood Turtle	*Clemmys insculpta*	Tortue des bois
Blanding's Turtle	*Emydoidea blandingi*	Tortue mouchetée
Painted Turtle	*Chrysemys picta*	Tortue peinte

ORDER: **LIZARDS and SNAKES**	**SQUAMATA**	**LEZARDS et SERPENTS**
Family: **Harmless and Rear-fanged Snakes**	**Colubridae**	**Serpents sans crochets venimeux et couleuvres**
Common Water Snake	*Natrix sipedon*	Couleuvre d'eau
Brown Snake	*Storeria dekayi*	Couleuvre brune
Red-bellied Snake	*Storeria occipitomaculata*	Couleuvre à ventre rouge
Eastern Ribbon Snake	*Thamnophis sauritus*	Couleuvre mince
Common Garter Snake	*Thamnophis sirtalis*	Couleuvre rayée
Eastern Hognose Snake	*Heterodon platyrhinos*	Couleuvre à nez plat
Eastern Ringneck Snake	*Diadophis punctatus*	Couleuvre à collier
Smooth Green Snake	*Opheodrys vernalis*	Couleuvre verte
Milk Snake	*Lampropeltis triangulum*	Couleuvre tachetée

CLASS **AMPHIBIANS**	**AMPHIBIA**	**AMPHIBIENS**
ORDER: **SALAMANDERS**	**CAUDATA**	**SALAMANDRES**
Family: **Mudpuppies**	**Proteidae**	**Nectures**
Mudpuppy	*Necturus maculosus*	Necture tacheté
Family: **Mole Salamanders**	**Ambystomidae**	**Salamandres**
Blue-spotted Salamander	*Ambystoma laterale*	Salamandre à points bleus
Yellow-spotted Salamander	*Ambystoma maculatum*	Salamandre maculée
Family: **Newts**	**Salamandridae**	**Tritons**
Red-spotted Newt	*Notophthalmus viridescens*	Triton vert
Family: **Lungless Salamanders**	**Plethodontidae**	**Salamandres sans poumons**
Red-backed Salamander	*Plethodon cinereus*	Salamandre cendrée
Two-lined Salamander	*Eurycea bislineata*	Salamandre à deux lignes
ORDER: **FROGS, TOADS, and TREEFROGS**	**ANURA**	**GRENOUILLES, CRAPAUDS, et RAINETTES**
Family: **Toads**	**Bufonidae**	**Crapauds**
American Toad	*Bufo americanus*	Crapaud d'Amérique
Family: **Treefrogs**	**Hylidae**	**Rainettes**
Spring Peeper	*Hyla crucifer*	Rainette crucifère
Eastern Gray Treefrog	*Hyla versicolor*	Rainette versicolore
Striped Chorus Frog	*Pseudacris triseriata*	Rainette faux-grillon
Family: **True Frogs**	**Ranidae**	**Grenouilles véritables**
Bullfrog	*Rana catesbeiana*	Oua-oua-ron
Green Frog	*Rana clamitans*	Grenouille criarde
Mink Frog	*Rana septentrionalis*	Grenouille du Nord
Wood Frog	*Rana sylvatica*	Grenouille des bois
Leopard Frog	*Rana pipiens*	Grenouille léopard
Pickerel Frog	*Rana palustris*	Grenouille des marais